

Term Information

Effective Term Autumn 2022
[Previous Value](#) [Spring 2017](#)

Course Change Information

What change is being proposed? (If more than one, what changes are being proposed?)

Increase credit hours from 3 to 4

What is the rationale for the proposed change(s)?

There is a need to provide additional laboratory content in this course to align with the new GE requirements for natural science

What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

There are no programmatic implications for this proposed change

Is approval of the request contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

General Information

Course Bulletin Listing/Subject Area Human Nutrition
Fiscal Unit/Academic Org Department of Human Sciences - D1251
College/Academic Group Education & Human Ecology
Level/Career Undergraduate
Course Number/Catalog 2210
Course Title Science of Human Nutrition
Transcript Abbreviation Sci Hum Nutrition
Course Description Basic principles of biological science, emphasizing the interaction between nutrients and physiological (including cellular) processes.
Semester Credit Hours/Units Fixed: 4
[Previous Value](#) [Fixed: 3](#)

Offering Information

Length Of Course 14 Week, 12 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? Yes
Is any section of the course offered 100% at a distance
Grading Basis Letter Grade
Repeatable No
Course Components Laboratory, Lecture
[Previous Value](#) [Lecture](#)
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus, Lima, Mansfield, Marion, Newark, Wooster
[Previous Value](#) [Columbus, Lima, Mansfield, Marion, Newark](#)

Prerequisites and Exclusions

Prerequisites/Corequisites

Exclusions

Previous Value

Not open to students with credit for 210.

Electronically Enforced

No

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code

19.0504

Previous Value

30.1901

Subsidy Level

Baccalaureate Course

Intended Rank

Sophomore

Requirement/Elective Designation

General Education course:

Biological Science; Natural Sciences

Previous Value

General Education course:

Biological Science

Course Details

Course goals or learning objectives/outcomes

- Students will describe and discuss the basic biological aspects of essential nutrient requirements of humans and the complex interactions between various nutrients and physiological and cellular processes
- Students will describe and discuss the influence of nutrient status on disease progression, body size, mental ability, and athletic performance.
- Students will summarize how nutrition requirements change throughout the lifespan.
- Students will investigate key events in the history of nutrition science, from the early discovery of the essential nutrients to the current research on the interactions between nutrients (and phytochemicals) and genetics.
- Students will explain how nutrition recommendations are derived using modern research methods.
- Students will create and evaluate scientific research in the field of nutrition.
- Students will be able to communicate and critique how modern science and technology can be used to address nutritional problems of the contemporary world.
- Students will assess the social and ethical implications of modern science and technology, exploring potential harms and benefits for human health.
- Students will be able to evaluate and critique reputable versus non-reputable sources of nutrition information.

Previous Value

- *Understand basic biological aspects of nutrient requirements of humans*
- *Appreciate the complex interactions and synergism of nutrients upon physiological and cellular processes*
- *Evaluate reputable versus non-reputable sources of nutrition information*
- *Determine how nutritional information is derived from the scientific method of investigation*
- *Understand the linkages between nutrients and disease processes, body size, mental ability and performance*
- *Understand the diverse cultural patterns that influence both food preferences and nutrient status*
- *Evaluate controversial topics related to food and nutrition*

Content Topic List

- Explore and examine how of modern science and technology can address nutritional problems of the contemporary world.
- Utilize computer technology to assess dietary intake and activity levels compared to national recommendations
- Identify the links between nutrients and disease processes, body size, mental ability and labor effectiveness (sport).
- Describe how nutritional needs change throughout the lifespan

Previous Value

- *What you eat and why*
- *Nutrition and health/nutrients*
- *Using scientific research to determine nutrient needs*
- *Guidelines for designing a healthy diet*
- *Methods of nutritional assessment*
- *Dietary guidelines*
- *MyPyramid*
- *DRI's*
- *Food labels*
- *Healthy web sites*
- *The human body: A nutrition perspective*
- *Human physiology: Digestive system*
- *Nutrients: Carbohydrates simple, complex carbohydrates/fiber digestion, absorption, energy use lactose intolerance, diabetes*
- *Nutrients: Lipids (fat) digestion, absorption, function, heart disease, fat intake & replacement strategies*
- *Nutrients: Protein amino acids; putting proteins to work; vegetarianism*
- *Energy: Energy balance: Intake vs. use*
- *Weight Control: Healthy Weight/Obesity*
- *Energy Balance: Obesity treatment*
- *Controlling energy intake/physical activity*
- *Nutrients: Fat soluble vitamins, A, D, E, K*
- *Vitamin Supplements: Who needs them?*
- *Nutrients: Water soluble vitamins
thiamin, riboflavin, niacin, B-6, folate, B-12, C*
- *Nutrients: Water*
- *Nutrients: major minerals: sodium, potassium, chloride, fluoride
high blood pressure
calcium, phosphorus/osteoporosis*
- *Nutrients: Trace minerals*
- *Fitness and sports*
- *Energy sources, fluids/ergogenic aids?*
- *Eating Disorders, anorexia nervosa & bulimia nervosa*
- *Alcohol*

Sought Concurrence

No

Attachments

- Resubmission cover letter.docx: Cover Letter
(Cover Letter. Owner: Bomser, Joshua A)
- HN 2210 (4 Cr) Resubmission Proposal.docx: GE Natural Science Proposal
(Other Supporting Documentation. Owner: Bomser, Joshua A)
- Proposed 4-credit HN 2210D Syllabus 2021-08-19.docx: 4 Credit HN 2210 Syllabus
(Syllabus. Owner: Bomser, Joshua A)
- 2210 3 Credit Syllabus.pdf: Old 3 credit HN 2210 Syllabus
(Syllabus. Owner: Bomser, Joshua A)

Comments

- It is not clear why you unchecked the current (old) GE status. Please re-check off. For a few years the Registrar's Office will run the current (old) GE concurrently with the new one. Thank you. *(by Vankeerbergen, Bernadette Chantal on 10/05/2021 04:34 PM)*
- We have revised HN2210 to a 4 credit natural science GE . A laboratory component has been developed allowing students to participate in experiential learning activities (Nutrition Labs) that directly engage students in the science of human nutrition. A cover letter and formal proposal are included, in addition to a revised 4 credit syllabus and old 3 credit syllabus for review.

GE will be accessible to all campuses (appropriate boxes have been checked)

Appropriate box for new GE foundation Natural Sciences as now been checked. *(by Bomser, Joshua A on 09/20/2021 12:19 PM)*
- Please see Panel feedback email sent 03/10/21. *(by Hilty, Michael on 03/10/2021 03:12 PM)*
- See 1-20-21 email to J. Bomser and G. Folden *(by Oldroyd, Shelby Quinn on 01/20/2021 02:05 PM)*

COURSE CHANGE REQUEST
2210 - Status: PENDING

Last Updated: Brown,Danielle Marie
10/05/2021

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Bomser,Joshua A	10/13/2020 08:00 AM	Submitted for Approval
Approved	Folden Jr.,H Eugene	10/13/2020 09:24 AM	Unit Approval
Approved	Brown,Danielle Marie	11/06/2020 09:11 AM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	11/16/2020 02:13 PM	ASCCAO Approval
Submitted	Bomser,Joshua A	11/20/2020 01:14 PM	Submitted for Approval
Approved	Folden Jr.,H Eugene	11/21/2020 11:12 AM	Unit Approval
Approved	Brown,Danielle Marie	12/10/2020 11:45 PM	College Approval
Revision Requested	Oldroyd,Shelby Quinn	01/20/2021 02:05 PM	ASCCAO Approval
Submitted	Bomser,Joshua A	01/22/2021 03:21 PM	Submitted for Approval
Approved	Folden Jr.,H Eugene	01/26/2021 09:47 AM	Unit Approval
Approved	Brown,Danielle Marie	02/11/2021 09:56 PM	College Approval
Revision Requested	Hilty,Michael	03/10/2021 03:12 PM	ASCCAO Approval
Submitted	Bomser,Joshua A	08/23/2021 10:33 AM	Submitted for Approval
Approved	Sutherland,Susan Linda	09/06/2021 12:13 PM	Unit Approval
Approved	Brown,Danielle Marie	09/08/2021 12:36 PM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	09/20/2021 11:56 AM	ASCCAO Approval
Submitted	Bomser,Joshua A	09/20/2021 12:19 PM	Submitted for Approval
Approved	Sutherland,Susan Linda	09/20/2021 12:21 PM	Unit Approval
Approved	Brown,Danielle Marie	09/22/2021 08:59 AM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	10/05/2021 04:38 PM	ASCCAO Approval
Submitted	Bomser,Joshua A	10/05/2021 04:41 PM	Submitted for Approval
Approved	Sutherland,Susan Linda	10/05/2021 04:43 PM	Unit Approval
Approved	Brown,Danielle Marie	10/05/2021 04:46 PM	College Approval
Pending Approval	Cody,Emily Kathryn Jenkins,Mary Ellen Bigler Hanlin,Deborah Kay Hilty,Michael Vankeerbergen,Bernadette Chantal Steele,Rachel Lea	10/05/2021 04:46 PM	ASCCAO Approval



August 20, 2021

Dear Natural and Mathematical Sciences Panel

Thank you for your March 10, 2021 feedback regarding our proposal to increase Human Nutrition 2210 from 3 credits to 4 credit. Your committee did not vote on our proposal and encouraged us to revisit the 1 credit hour experiential learning component for HN2210. We have taken your advice and have developed 12 lab modules to be completed over the semester. The addition of these laboratories provides a variety of experiential learning activities that allow students to directly engage in the science of human nutrition. We feel that the addition of these laboratories successfully meet the threshold for one (1) additional credit hour of experiential learning for HN2210.

The 12 proposed labs, most consisting of a prelab (part A) and lab (part B), are briefly outlined below and further expanded upon in our accompanying documents (syllabus and GE submission form). In Carmen, we have prepared an example of one fully developed laboratory activity which focuses on the digestion and absorption of lactose, the major carbohydrate found in dairy products. The title of this lab is “Lactose Digestion” and Weeks 1 (part A) and 2 (part B) of this lab can be accessed here [Lactose Lab](#).

Nutrition Lab 1: Computerized Dietary Analysis

- Collect accurate dietary data (part of comprehensive nutrition assessment).
- Analyze dietary data using dietary analysis software.
- Compare and contrast various dietary data collection techniques

Nutrition Lab 2A: Lactose Digestion

- Describe the function of enzymes in digestion.
- Explain the physiological basis of lactose maldigestion.
- Observe the effects of environmental variations (i.e., temperature and pH) on enzyme activity.

Nutrition Lab 2B: Lactose Digestion

- Describe the function of enzymes in digestion.
- Discuss enzyme specificity.
- Predict the effects of enzymes on various substrates.
- Explain the physiological basis of lactose maldigestion.
- Use breath hydrogen data to diagnose lactose maldigestion.
- Suggest dietary strategies to ensure nutrient adequacy for individuals with lactose maldigestion.



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Nutrition Lab 3A: Lipids

- Describe the roles of lipoproteins.
- Relate blood lipid measurements to heart disease risk.
- Summarize the effects of various types of fatty acids and dietary fiber on blood lipoproteins.
- Evaluate personal and course-wide dietary data relative to public health recommendations from the Dietary Guidelines and American Heart Association.
- Assess cardiovascular disease risk using the online ASCVD calculator.
- Suggest dietary strategies to lower risk for cardiovascular disease.

Nutrition Lab 3B: Lipids

- Analyze the effect of a simple dietary intervention on blood lipids among college students.

Nutrition Lab 4A: Fluid Balance

- Predict the effects of isotonic, hypertonic, and hypotonic solutions on living cells.

Nutrition Lab 4B: Fluid Balance

- Assess hydration status using urine color and a chemical assay of urine specific gravity.
- Relate hydration status to simple assessments of mood, cognitive function, and physical performance.

Nutrition Lab 5A: Vitamin and Mineral Supplements

- Summarize differences in absorption, storage, and excretion of water-soluble vs. fat-soluble vitamins.
- Observe the excretion of water-soluble vitamins.

Nutrition Lab 5B: Vitamin and Mineral Supplements

- Observe the antioxidant activity of vitamin C.

Nutrition Lab 6: Body Composition

- Calculate BMI from stature and weight measurements.
- Use BMI to assess weight status of individuals.
- Compare BMI to true measures of body fatness.
- Evaluate the utility of BMI as a screening tool for obesity.

Nutrition Lab 7A: #nutrition

- Evaluate the safety and efficacy of a popular ergogenic aid.
- Analyze the effect of the ketogenic diet on athletic performance among college students.



Nutrition Lab 7B: #nutrition

- Determine the nutritional adequacy of a fad diet promoted on social media.
- Assess the impact of social media use on self-esteem and disordered eating behavior

Each lab incorporates several related theoretical and experiential activities, and scaffolds new concepts upon existing knowledge. In closing we feel that this revised GE is foundational in the study of natural science because it introduces students to the scientific method of inquiry and basic concepts in biology, chemistry, and human physiology in a way that is completely relevant, understandable, and applicable to everyday life. Students engage with the steps of the scientific method from the perspective of early nutrition scientists who observed relationships between food intake and health outcomes, then formed and tested hypotheses about the identities and functions of nutrients. Human nutrition is an engaging way for students with little background in science to understand and apply biology and chemistry concepts.

We hope these changes address the panels concerns and allow for approval of HN2210 as a 4 credit GE in Natural Sciences. We also thank the committee for their patience, advice and support in the development of this class.

Thanks for your assistance with this process.

Best Regards

Joshua Bomser, PhD
Associate Professor Human Nutrition



HUMN NTR 2210 ONLINE

Science of Human Nutrition

AUTUMN 2022: 4 credit hours, undergraduate

Course Syllabus

INSTRUCTOR

Angela Collene
385 Campbell Hall
collene.6@osu.edu

OFFICE HOURS

Tu/Th 10:00 AM – 3:00 PM (in person)
or by request (via Zoom)

GRADUATE TEACHING ASSISTANTS

TBA

COURSE DESCRIPTION

This course will address the basic principles of the biological science involving interactions between nutrients and physiological processes with emphasis on implications for human health.

MODE OF DELIVERY

This course is 100% online. All content will be delivered asynchronously; there are no required sessions when you must be logged in to Carmen at a scheduled time. Logging in to Zoom office hours is optional.

PREREQUISITES

None

GENERAL EDUCATION (GE) GOALS AND EXPECTED LEARNING OUTCOMES

This course meets the goals of the Natural Sciences Component of the General Education Program at The Ohio State University:

- Successful students will engage in theoretical and empirical study within the natural sciences, while gaining an appreciation of the modern principles, theories, methods, and modes of inquiry used generally across the natural sciences.
- Successful students will discern the relationship between the theoretical and applied sciences, while appreciating the implications of scientific discoveries and the potential impacts of science and technology.

The Course Goals below stem from the Natural Sciences Expected Learning Outcomes.

COURSE GOALS

GE Expected Learning Outcomes	Course Goals
ELO 1.1 Successful students are able to explain basic facts, principles, theories, and methods of modern natural sciences; describe and analyze the process of scientific inquiry.	CG 1. Students will describe and discuss the basic biological aspects of essential nutrient requirements of humans and the complex interactions between various nutrients and physiological and cellular processes. CG 2. Students will describe and discuss the influence of nutrient status on disease progression, body size, mental ability, and athletic performance. CG 3. Students will summarize how nutrient requirements change throughout the life span.
ELO 1.2 Successful students are able to identify how key events in the development of science contribute to the ongoing and changing nature of scientific knowledge and methods.	CG 4. Students will investigate key events in the history of nutrition science, from the early discovery of the essential nutrients to the current research on the interactions between nutrients (and phytochemicals) and genetics.
ELO 1.3 Successful students are able to employ the processes of science through exploration, discovery, and collaboration to interact directly with the natural world when feasible, using appropriate tools, models, and analysis of data.	CG 5. Students will explain how nutrition recommendations are derived using modern research methods. CG 6. Students will create and evaluate scientific research in the field of nutrition.
ELO 2.1 Successful students are able to analyze the interdependence and potential impacts of scientific and technological developments.	CG 7. Students will be able to communicate and critique how modern science and technology can be used to address nutritional problems of the contemporary world.
ELO 2.2 Successful students are able to evaluate social and ethical implications of natural scientific discoveries.	CG 8. Students will assess the social and ethical implications of modern science and technology, exploring potential harms and benefits for human health.
ELO 2.3 Successful students are able to critically evaluate and responsibly use information from the natural sciences.	CG 9. Students will be able to evaluate and critique reputable versus non-reputable sources of nutrition information.

COURSE MATERIALS

1. **Smith, A.M., Collene, A.L., and Spees, C.K. (2021). *Wardlaw's Contemporary Nutrition: A Functional Approach* (6th ed.). New York, NY: McGraw-Hill Education.**

The eBook and courseware for this course are being provided via CarmenBooks. Through CarmenBooks, students obtain publisher materials electronically through Carmen, saving them up to 80% per title. The fee for this material is included as part of tuition and is listed as *CarmenBooks fee* on your Statement of Account. In addition to cost-savings, materials provided through CarmenBooks are available immediately on or before the first day of class. There is no need to wait for financial aid or scholarship money to purchase your textbook.

Unless you choose to opt out of the program, you do NOT need to purchase any books for this course at the bookstore. For more information on the program or information on how to opt out, please visit the [CarmenBooks website](#).

Access the courseware for this title through the **McGraw-Hill Connect** link in the course navigation menu.

There is an option to add a printed (loose-leaf) version of the textbook for an additional \$30.00 after you create your Connect account through our course Carmen page.

2. **HUMN NTR 2210 Nutrition Lab Kit**

The Nutrition Lab kit contains the supplies for conducting scientific experiments in the home setting. See the discussion of Nutrition Labs on pages 8 – 10.

Additional resources (e.g., articles, videos, audio files) will be provided via Carmen.

COURSE TECHNOLOGIES

Technical Skills Required for this Online Course

- Basic computer and web-browsing skills
- Navigating Carmen (For questions about Carmen, see the [Canvas Student Guide](#).)
- [CarmenZoom virtual meetings](#)
- Navigating McGraw-Hill Connect (tutorials available in Course Orientation)

Required Equipment

- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in or external
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication

Accessing Carmen

You will need to use [BuckeyePass](#) multifactor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass – Adding a Device](#) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click Enter a Passcode and then click the Text me new codes button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the [Duo Mobile application](#) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at (614) 688-4357 (HELP) and IT support staff will work out a solution for you.

Accessing McGraw-Hill Connect

The course materials (eBook and dietary analysis software) were included as your course fee when you registered for the course. When you log into Carmen, you will see a link to McGraw-Hill Connect in the navigation menu. The first time you click on this link or try to access an assignment, you will be prompted to create an account and register your course materials. Please use your OSU email address to create your account. If you are using (or have used) Connect for other courses, you may use the same account. On subsequent visits, you should be logged into Connect automatically and will be able to access your assignments via links in our Carmen course page.

Getting Help

For help with your password, university e-mail, Carmen, or any other OSU technology issues, contact the **OSU IT Service Desk**. Support is available 24/7.

- **Self-Service and Chat support:** <https://osuitsm.service-now.com/selfservice/>
- **Phone:** (614) 688-HELP (4357)
- **Email:** 8help@osu.edu
- **TDD:** (614) 688-8743

For technical help with McGraw-Hill Connect, contact **McGraw-Hill Customer Support**. Standard support hours are Sunday 12 PM – 12 AM, Monday – Thursday 24 hours, Friday 12 AM- 9 PM, and Saturday 10 AM – 8 PM.

- **Phone:** (800) 331-5094 (RECOMMENDED)
- **Email or Live Chat:** click the **Help (?)** icon in the navigation menu on the left side of the screen in Connect

COMMUNICATION

E-Mail

All students must have an active OSU email account and reliable access to the Internet. Emails sent from hotmail, yahoo, google, etc. may go to the spam boxes of your instructor or teaching assistants. It is best to send communication through your OSU account.

Please feel comfortable emailing your instructor and teaching assistants throughout the semester. This is the main form of communication between students and instructing staff. Students should use email rather than discussion boards in Carmen to ask questions about personal concerns (e.g., grades). Our policy is to respond to emails within 1 business day (i.e., excluding weekends and university holidays). When authoring emails, please type “2210” at the beginning of the subject line of your email. If you do not receive a response to an email within 24 hours, please resend your email.

Carmen (<https://carmen.osu.edu/>)

All students are required to use Carmen, OSU’s learning management system, which is based on the Canvas platform. Students should plan to access Carmen frequently throughout the week for announcements, discussions, learning resources, assignments, and grades. If you are new to Carmen, please see the guide to getting started at <https://resourcecenter.odee.osu.edu/carmencanvas/getting-started-canvas-students>.

Announcements

Your instructor will post Course News approximately once per week using the announcements feature in Carmen to answer common questions and remind you of upcoming tasks. Be sure to read these announcements to stay informed, engaged, and on schedule. To ensure that you are alerted when new announcements are posted, you can adjust your settings and notification preferences within Carmen. Go to Account (on the left side of the screen in Carmen) and select Settings to add your preferred email address; select Notifications to change how you are alerted when new announcements are posted.

Carmen’s Discussion Board

If you have general questions about the course that do not contain personal information and are likely to be relevant to other students in the course, post your questions on the discussion board in Carmen. Examples of general questions include clarifications of assignment instructions, questions about course content, or technical concerns. In a large, online course, it is very common for students to have similar questions. To avoid redundancy, please review recent questions and answers before posting a new question.

ONE-ON-ONE MEETINGS

Meeting with the Instructor

If course content, assignment, or technology struggles arise, please join your instructor during scheduled office hours (see page 1) or contact the instructor via email for an individual appointment.

Meeting with the Graduate Teaching Assistants

The graduate teaching assistants (GTAs) are graduate students in nutrition who are available to help you master the course content and excel in the course. Please email your GTAs directly (see page 1) to ask questions or schedule a meeting.

COURSE EXPECTATIONS

Workload

This is a 4-credit online course. You should expect to spend *at least* the same amount of time reading the text, engaging with online content, completing laboratory activities and other assignments, and reviewing course notes as you would spend for a face-to-face course (about 12 hours per week).

It can be very easy to fall behind in an online course. Any online course requires self-discipline to stay on track with readings and assignments. This course is designed in weekly increments, such that new material is released each Monday and assignments based on that material are due the following Monday at 11:59 PM. This layout is flexible enough to allow you to work wherever and whenever you choose yet structured enough to encourage efficient accumulation and retention of knowledge. The instructor and GTAs will support your learning with organized materials, weekly email updates, thoughtful feedback, and clear instructions throughout the semester. Please do your part by reading emails, maintaining a record of all due dates in your own calendar, and regularly visiting our course page in Carmen for news and assignments.

College-Level Writing

Some assignments require written responses to short essay questions or discussion prompts. Be sure to read the instructions completely and stay on topic. Be mindful of proper spelling and grammar. It may be helpful to compose your responses in a word processing program, then copy and paste your responses into your online assignment. This will enable you to proofread your work and will also serve as a reliable back-up in case of Wi-Fi interruptions or accidentally closing your browser before your work has been saved.

If you are asked to share your opinion, please elaborate! Instead of simply writing “I agree,” state why you agree, give an example, or refer to a thought-provoking resource. Support your arguments with credible, scientific evidence. Choose your sources wisely. The internet is a bottomless pit of health information—some is reliable, some is suspicious, and some is downright dangerous. As you search online for health information, consider the credibility of the

source and how current the information is. For more information on evaluating health information, see <https://medlineplus.gov/evaluatinghealthinformation.html>.

It is not acceptable to copy and paste content that has been written by someone else. To avoid plagiarism, even if you are paraphrasing, *always* cite your sources. Please use AMA citation styles (see [AMA Manual of Style Citation Guide](#)).

Netiquette

As a member of a community of online learners, it is your responsibility to exhibit professional behavior and decorum in all modes of communication. Following the rules of etiquette on the Internet (netiquette) helps to improve the readability of your messages, keeps conversations focused, increases trust, and creates a more positive experience for all participants. Netiquette includes, but is not limited to, the following guidelines:

- Honor people’s rights to their opinions; respect the right for people to disagree.
- Be professional; use language that is not considered foul or abusive.
- Respond to peers honestly, thoughtfully, respectfully, and constructively.
- Avoid writing in all caps; it conveys shouting and anger.
- Avoid colors like red and green for accessibility reasons; avoid font styles, colors, and sizes that are difficult to read.
- Address the ideas, not the person, when responding to messages or discussions.
- Be careful when using humor or sarcasm; without social cues like facial expressions or body language, a remark meant to be humorous could come across as offensive or hurtful.
- Do not distribute copyrighted materials, such as articles and images (most things online are not licensed as “fair use”). Share links to those materials (instead of copying/pasting them) and be sure to properly cite all sources to avoid unintentional plagiarism.

ASSIGNMENTS

Assignment due dates are all set from the beginning of the semester and are listed in multiple locations for your benefit.

1. Syllabus
2. Carmen calendar
3. Course News announcements

This course uses a variety of digital tools, including Carmen (OSU’s learning management system) and Connect (a digital learning platform from McGraw-Hill that accompanies our eBook for the course). Whether the assignments are built in Carmen or Connect, you will be able to access them by simply clicking on the name of the assignment from our course page in Carmen.

SmartBook Activities

SmartBook activities will be how you encounter the chapters of our text, *Wardlaw's Contemporary Nutrition: A Functional Approach*. SmartBook is an adaptive reading tool. As you read the pages of the eBook, you will notice that some text is highlighted. The highlighted text represents core content you will need to pass the course. I recommend that you read the chapters completely (including the non-highlighted material) the first time through. You can focus on the highlighted material when you go back and study for exams.

As you read each chapter, you will be prompted to stop and answer questions based on what you have read. If you answer the questions correctly, you will move on quickly. If you get some questions wrong, SmartBook will give you additional questions and resources to help you master the content. SmartBook will also remember where you struggled with the content and present you with additional questions when you return to a chapter to review. Expect the SmartBook activities (including reading and practice questions) to take about 2 to 3 hours per week. Start SmartBook activities early in the week and plan to spend 20 to 30 minutes per day to optimize retention.

SmartBook activities are graded based on completion; an assignment is considered complete when you have demonstrated mastery of the concepts selected by your instructor. If you read the section first, you will move through the practice questions quickly. However, if you decide to skip the reading and just do the practice questions, it may take a longer time because SmartBook will present you with more and more questions until you demonstrate mastery of the selected concepts.

There are 17 SmartBook activities, worth **5 to 10 points** each. Full credit is awarded once you have mastered the concepts your instructor has selected. If you start a SmartBook activity and make some progress, you will receive partial credit based on the number of concepts you have mastered by the due date. If you do not start an assigned SmartBook activity by the due date, you will receive a score of 0 for that activity. You may return to any SmartBook activity to read and recharge, but your score for that activity is based on what you have achieved by the due date. All scores will count toward your final grade. If you complete all of the assigned SmartBook activities on time, you can be assured of 150 points (of 1000 total points for the course).

Nutrition Labs

One expected learning outcome of a GE Natural Sciences course is that *students will be able to employ the processes of science through exploration, discovery, and collaboration to interact directly with the natural world when feasible, using appropriate tools, models, and analysis of data.* One credit hour of this course is dedicated to a variety of experiential learning activities (Nutrition Lab Modules) that allow students to directly engage in the science of human nutrition. Each Nutrition Lab incorporates several related theoretical and experiential activities, and scaffolds new concepts upon existing knowledge.

The learning objectives of the Nutrition Labs are outlined below:

Nutrition Lab 1: Computerized Dietary Analysis

- Collect accurate dietary data (part of comprehensive nutrition assessment).
- Analyze dietary data using dietary analysis software.
- Compare and contrast various dietary data collection techniques

Nutrition Lab 2A: Lactose Digestion

- Describe the function of enzymes in digestion.
- Explain the physiological basis of lactose maldigestion.
- Observe the effects of environmental variations (i.e., temperature and pH) on enzyme activity.

Nutrition Lab 2B: Lactose Digestion

- Describe the function of enzymes in digestion.
- Discuss enzyme specificity.
- Predict the effects of enzymes on various substrates.
- Explain the physiological basis of lactose maldigestion.
- Use breath hydrogen data to diagnose lactose maldigestion.
- Suggest dietary strategies to ensure nutrient adequacy for individuals with lactose maldigestion.

Nutrition Lab 3A: Lipids

- Describe the roles of lipoproteins.
- Relate blood lipid measurements to heart disease risk.
- Summarize the effects of various types of fatty acids and dietary fiber on blood lipoproteins.
- Evaluate personal and course-wide dietary data relative to public health recommendations from the Dietary Guidelines and American Heart Association.
- Assess cardiovascular disease risk using the online ASCVD calculator.
- Suggest dietary strategies to lower risk for cardiovascular disease.

Nutrition Lab 3B: Lipids

- Analyze the effect of a simple dietary intervention on blood lipids among college students.

Nutrition Lab 4A: Fluid Balance

- Predict the effects of isotonic, hypertonic, and hypotonic solutions on living cells.

Nutrition Lab 4B: Fluid Balance

- Assess hydration status using urine color and a chemical assay of urine specific gravity.
- Relate hydration status to simple assessments of mood, cognitive function, and physical performance.

Nutrition Lab 5A: Vitamin and Mineral Supplements

- Summarize differences in absorption, storage, and excretion of water-soluble vs. fat-soluble vitamins.
- Observe the excretion of water-soluble vitamins.

Nutrition Lab 5B: Vitamin and Mineral Supplements

- Observe the antioxidant activity of vitamin C.

Nutrition Lab 6: Body Composition

- Calculate BMI from stature and weight measurements.
- Use BMI to assess weight status of individuals.
- Compare BMI to true measures of body fatness.
- Evaluate the utility of BMI as a screening tool for obesity.

Nutrition Lab 7A: #nutrition

- Evaluate the safety and efficacy of a popular ergogenic aid.
- Analyze the effect of the ketogenic diet on athletic performance among college students.

Nutrition Lab 7B: #nutrition

- Determine the nutritional adequacy of a fad diet promoted on social media.
- Assess the impact of social media use on self-esteem and disordered eating behavior

The nutrition laboratories outlined above are designed to be completed in an online and/or at-home setting. Nutrition science lends itself well to at-home experimentation. First-hand data collection and experimentation are included in Nutrition Labs 1, 2A, 4A, 5A, 5B, and 6. Course material include a **Nutrition Lab Kit** with all the necessary supplies for each hands-on activity. Other Nutrition Labs will be conducted as simulations, in which laboratory experiments are demonstrated by the instructional team and students interpret the results.

There are 12 Nutrition Lab modules, worth **25 to 50 points** each, for a total of 350 points. You will have one attempt, untimed, which will be scored based on adherence to lab instructions and accuracy. Nutrition Labs are open-book, and the instructional team will be available for assistance during scheduled office hours or by request. Late submissions are subject to a point deduction of 10% per day late.

HELPFUL TIP: Nutrition Lab 1: Computerized Dietary Analysis involves tracking and analyzing your food and beverage intake for three days using NutritionCalc Plus, a dietary analysis program that is included with your course materials from McGraw-Hill. The processes of tracking, analyzing, and evaluating your own dietary pattern aim to make the course content relevant to you. You will use the results of Nutrition Lab 1 to answer questions in subsequent Nutrition Lab and Beyond the Basics activities throughout the semester. *If there is any physical or mental health reason you cannot track or analyze your own dietary pattern for three days, please contact your instructor to make plans for an alternative assignment.*

Beyond the Basics Activities

Complete the Beyond the Basics activities to reinforce the material you learn. These activities will give you an opportunity to utilize and extend your nutrition knowledge to make it relevant to you and the world around you. Besides traditional multiple choice and true/false questions, Beyond the Basics activities consist of a variety of interactive questions, dietary analysis, and critical thinking exercises.

By the end of the first week of the course, you will complete the first Beyond the Basics activity (Course Orientation). This activity ensures you are familiar with the course expectations and know how to navigate the digital tools.

The remaining Beyond the Basics activities may require you to interpret an article, respond to questions about a video presentation, learn from a podcast, or evaluate a case study. For any open-response items in your Beyond the Basics activities, support your ideas with credible, scientific evidence. Choose your sources wisely. As you search online for health information, consider the credibility of the source and how current the information is. In Chapter 2, you will learn how to identify reliable nutrition information. For more information on evaluating health information, see <https://medlineplus.gov/evaluatinghealthinformation.html>. It is not acceptable to copy and paste content that has been written by someone else. To avoid plagiarism, even if you are paraphrasing, *always* cite your sources.

There are 6 Beyond the Basics activities, worth **20 to 40 points** each for a total of 200 points throughout the semester. For Beyond the Basics: Course Orientation, you will have unlimited attempts, untimed, which will be scored based on accuracy. Your highest score will be recorded in the gradebook. For all other Beyond the Basics activities, you will have one attempt, untimed, which will be scored based on accuracy. You are welcome to reference your eBook and other course materials as you complete these activities (many items provide a link to the relevant section in the eBook). You can also save your progress, close the browser, and resume at a later time. Please be aware that each student receives a set of questions that is randomly drawn from a pool of many questions, so your assignments may be different from those of your classmates. Late submissions are subject to a point deduction of 10% per day late.

HELPFUL TIP: To be assured of proper credit, please remember to click SUBMIT when you complete your Beyond the Basics activities. After you complete any assignment, verify that your score has posted to the Carmen grade book.

Extra Credit

Optional extra credit assignments will be available. All extra credit assignments must be submitted by 11:59 PM on the due dates listed in the course calendar if you would like them to be counted toward your grade. No extensions will be available for extra credit assignments and no additional individual requests for extra credit will be granted. Although extra credit assignments are optional, it is in your best interest to complete all of these assignments; they can only boost your grade (i.e., scores will be counted out of 0).

Please note that the Carmen grade book does not provide a simple way to award extra credit points. Therefore, your overall grade may not improve immediately after you complete an extra credit assignment. However, within a week after the due date for each extra credit assignment, the instructor will convert scores from up to 10/10 to up to 10/0 in the grade book.

EXAMS

There are four online exams. Each exam will be available for five days and will be administered via Connect. Exam questions are drawn from a bank of many questions, so your exam will not be exactly like any of your classmates' exams, although it will cover the same content. Exams are timed. You may use your course materials, a basic, non-graphing calculator, and scratch paper during exams. Although you may use your course materials during exams, they are timed, and you should work independently. Collaboration with others during exams is not permitted.

EXAM	TIME LIMIT	POINTS	CONTENT
Unit 1	60 minutes	100	1, 2, 3, and part of 17
Unit 2	60 minutes	100	4, 5, and 6
Unit 3	60 minutes	100	8, 9, 10, 11, 12, and 13
Unit 4/Final	90 minutes	150	Cumulative; mostly 7, 14, 15, and 16

It is your responsibility to take exams within the range of available dates. Make up exams or alternative exam accommodations can be requested for medical or equivalent excuses with appropriate documentation. If needed, please contact your instructor via email *prior to* the scheduled exam date. All exam dates are all set from the beginning of the semester and are listed in multiple locations for your benefit. Failure to responsibly manage your schedule is *not* a valid reason for a make-up attempt. If you do not take an exam or make arrangements for a make-up exam by 11:59 PM on the due date, you will receive a 0 for the exam.

There are 4 exams, worth **75 points each**, for a total of 300 points; **all scores** will be counted toward your final grade.

Exams with SLDS-Approved Accommodations

If you have special exam accommodations approved through the Office of Student Life Disability Services, you may schedule your exams with SLDS in Baker Hall during the range of available dates. At the beginning of the semester, please provide proper documentation of your accommodations through the SLDS portal. Communicate with the instructor via email or virtual meeting to determine how you will take exams.

Please note, if you only need extended time for exams, the instructor can set the extension online.

Due to recent public health recommendations from the state of Ohio and the university to limit social contact to prevent the spread of coronavirus (COVID-19), the Office of Student Life Disability Services has limited hours and space for in-person testing. Please use the AIM portal (<https://sierra.accessiblelearning.com/OSU/>) and/or contact your assigned access specialist if you have questions about your testing environment.

GRADING POLICIES

Progress will be regularly evaluated by student performance on assignments and exams. All assignments and exams are due at 11:59 PM on the due dates. Due dates for all assignments and exams are clearly indicated in the course calendar portion of the syllabus, on the Carmen calendar feature, and in email communications from the instructor. Detailed instructions will be provided for each assignment.

Late Assignments

For SmartBook activities, partial credit will be awarded for the portion submitted by the due date, but no credit will be awarded for late submissions. For Nutrition Labs and Beyond the Basics activities, late submissions will be accepted, but scores will be reduced by 10% per day late. For Exams and Extra Credit activities, late submissions will not be accepted.

Extensions

Students requesting an extension for any assignment should provide appropriate documentation (e.g., doctor's note) and discuss the matter with the instructor *prior to* the due date. For documented excuses, it is customary to grant one week of additional time to complete all assignments due that week without deductions for late submission.

Understandably, there may be some circumstances in which it is not possible for a student to provide appropriate documentation of the reason for requesting an extension. To allow some grace and flexibility for such circumstances, each student will be granted *one* free extension per semester, no questions asked. If you need to request your one free extension, email the instructor within one week of the missed assignment(s) and you may complete the missed assignment(s) up to one week late without deductions for late submission. Be aware that no student will receive more than one free extension.

Grading Point Distribution

The weights of each form of student evaluation are shown below. For a spreadsheet version of the point distribution that will accurately calculate your grade, see “How to Calculate Your Grade” in the Getting Started module.

EXAMS (300 points = 30% of grade)	
Unit 1 Exam (Chapters 1, 2, 3, 17)	75
Unit 2 Exam (Chapters 4, 5, 6)	75
Unit 3 Exam (Chapters 8, 9, 10, 11, 12, 13)	75
Unit 4 Exam (Chapters 7, 14, 15, 16)	75
SMARTBOOK ACTIVITIES (150 points = 15% of grade)	
Ch01: Nutrition, Food Choices, & Health	10
Ch02: Designing a Healthy Dietary Pattern	10
Ch17: Safety of Our Food Supply	5
Ch03: The Human Body: A Nutrition Perspective	10
Ch04: Carbohydrates	10
Ch05: Lipids	10
Ch06: Proteins	10
Ch08: Overview of Micronutrients & Phytochemicals	5
Ch09: Fluid & Electrolyte Balance	10
Ch10: Nutrients Involved in Body Defenses	10
Ch11: Nutrients Involved in Bone Health	10
Ch12: Micronutrient Function in Energy Metabolism	10
Ch13: Nutrients that Support Blood & Brain Health	10
Ch07: Energy Balance & Weight Control	10
Ch14: Nutrition: Fitness & Sports	10
Ch15: Eating Disorders	5
Ch16: Undernutrition Throughout the World	5
BEYOND THE BASICS ACTIVITIES (200 points = 20% of grade)	
Course Orientation Quiz	20
Food Guides Around the World	40
Alcohol & Binge Drinking	30
Bone & Joint Health	40
Nutrition & Mental Health	40
Food Security	30
NUTRITION LAB ACTIVITIES (350 points = 35% of grade)	
1: Computerized Dietary Analysis	50
2A: Lactose Digestion	25
2B: Lactose Digestion	25
3A: Lipids	25
3B: Lipids	25
4A: Fluid Balance	25
4B: Fluid Balance	25

5A: Vitamin & Mineral Supplements	25
5B: Vitamin & Mineral Supplements	25
6: Body Composition	50
7A: #nutrition	25
7B: #nutrition	25
EXTRA CREDIT	
Magnificent Microbiome	+10
Cancer Research	+10
No-Meat Athlete	+10
Course Survey 1	+5
Course Survey 2	+5
Detect an Error	+unlimited
	1000

HELPFUL TIP: Using the default settings, Carmen calculates your grade based on the assignments and exams you have completed to date. Missed assignments may not be factored into the calculation. Periodically throughout the semester, your instructor or GTA will review the gradebook and manually enter “0” for missing assignments. To see your total grade (including any incomplete assignments) using the Carmen grade book, be sure to uncheck the option for “Calculate based only on graded assignments.”

Grading Scale

A	=	930 – 1000 points
A-	=	900 – 929 points
B+	=	870 – 899 points
B	=	830 – 869 points
B-	=	800 – 829 points
C+	=	770 – 799 points
C	=	730 – 769 points
C-	=	700 – 729 points
D+	=	670 – 699 points
D	=	600 – 669 points
E	=	0 – 599 points

HELPFUL TIP: At the end of the semester, many students ask if their grades will be rounded up. Your grade will be rounded to the nearest *whole point* out of 1000 points and assigned a letter grade according to the scale shown above. This is not the same as rounding to the nearest percent. For example, if your total points for the semester are 929.5 out of 1000, this would be rounded up to 930 and you would earn an A for the course. However, if your total points are 925 out of 1000, this falls into the range of scores for A-. To maximize your points, turn in all assignments on time and take advantage of extra credit opportunities.

ACADEMIC INTEGRITY

Policies for this Online Course

- **Exams:** You may use your course materials, but you must complete all exams yourself, without any external collaboration.
- **Assignments:** You are expected to do your own work on all assignments (e.g., SmartBook, Dietary Analysis, Beyond the Basics, and Extra Credit activities), without external collaboration.
- **Reusing past work:** In general, you are prohibited in university courses from turning in work from a past course to your current course, even if you modify it. If you have specific questions about this, please ask the instructor.
- **Collaboration and informal peer-review:** This course includes several discussion-based Beyond the Basics activities that provide opportunities for collaboration with your classmates. While study groups are encouraged, remember that comparing answers on exams and assignments is not permitted. If you are unsure about a particular situation, please ask your instructor ahead of time.

OSU's Academic Integrity Policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the university's [Code of Student Conduct](#), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the university's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If the instructor or GTAs suspect that a student has committed academic misconduct in this course, we are obligated by university rules to report our suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the university's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact your instructor.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web pages ([COAM Home](#))
- *Ten Suggestions for Preserving Academic Integrity* ([Ten Suggestions](#))
- *Eight Cardinal Rules of Academic Integrity* (www.northwestern.edu/uacc/8cards.htm)

COPYRIGHT DISCLAIMER

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

ACCESSIBILITY ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

Requesting Accommodations

The university strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability, including mental health, chronic, or temporary medical condition, please contact your instructor to discuss your specific needs. To establish accommodations, you may need to register with Student Life Disability Services. After registration, make arrangements with your instructor as soon as possible to discuss the timely implementation of your accommodations for this course. You may contact the Office of Student Life Disability Services (<http://slds.osu.edu/>) at (614) 292-3307 or visit 098 Baker Hall at 113 West 12th Avenue to coordinate reasonable accommodations.

Accessibility of Course Technology

This online course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- [CarmenCanvas accessibility](#)
- [CarmenZoom accessibility](#)
- [McGraw-Hill Connect accessibility](#)

COVID-RELATED ACCOMMODATIONS

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's [request process](#), managed by Student Life Disability Services. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let your instructor know immediately so that you can set up a meeting to discuss options for completing your coursework. To establish reasonable accommodations, the instructor may request that you register with Student Life Disability Services (<https://slds.osu.edu/>). After registration, make arrangements with your instructor as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

MENTAL HEALTH

College students may experience mental health concerns impacted by a variety of factors. As a result, it is important for students to keep in mind that there are supports available. While individual counseling, group counseling, and psychiatric care are good options, it is important for students to consider all the resources available based on the situation/need, timeliness, and availability. More information about university support may be found here <https://ccs.osu.edu/mental-health-support-options/>

At the College of Nursing, a mental health counselor is available for individual counseling appointments. More information may be found on the website (<https://nursing.osu.edu/students/student-resources/counseling-services>) or reach out to schedule an appointment via email woith.3@osu.edu or by calling (614) 292-6952.

Students are also welcome to use Ohio State's primary counseling center, Counseling Consultation Services (CCS), which offers appointments 8:00 a.m. – 8:00 p.m. Monday-Thursday and 8:00 a.m. – 5:00 p.m. on Fridays. Students can schedule an appointment with CCS by calling (614) 292-5766.

DIVERSITY

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

TITLE IX

All students and employees at Ohio State have the right to work and learn in an environment free from harassment and discrimination based on sex or gender, and the university can arrange interim measures, provide support resources, and explain investigation options, including referral to confidential resources.

If you or someone you know has been harassed or discriminated against based on your sex or gender, including sexual harassment, sexual assault, relationship violence, stalking, or sexual exploitation, you may find information about your rights and options at titleix.osu.edu or by contacting the Ohio State Title IX Coordinator at titleix@osu.edu. Title IX is part of the Office of Institutional Equity (OIE) at Ohio State, which responds to all bias-motivated incidents of harassment and discrimination, such as race, religion, national origin, and disability. For more information on OIE, visit equity.osu.edu or email equity@osu.edu.

GRIEVANCES AND SOLVING PROBLEMS

According to University Policies, available from the Division of Student Affairs, if you have a problem with this class, “You should seek to resolve a grievance concerning a grade or academic practice by ***speaking first with the instructor or professor***: Then, if necessary, with the department chairperson, college dean, and provost, in that order. Specific procedures are outlined in Faculty Rule 3335-7-23, which is available from the Office of Student Life, 208 Ohio Union.” “Grievances against graduate, research, and teaching assistants should be submitted first ***to the supervising instructor***, then to the chairperson of the assistant’s department.”

COURSE EVALUATIONS

It is critical to the continued success of this course to have your honest and valued feedback. Near the end of the semester, you will have the opportunity to fill out the standard institutional SEI on the instructor (online submission). The instructor will also send you a separate course feedback survey via Carmen to gather more course-specific information.

August/September 2022

HUMN NTR 2210D

SUN	MON	TUE	WED	THU	FRI	SAT
21	22 Course Materials Available	23	24	25	26	27
28	29 Beyond the Basics: Course Orientation Quiz SmartBook: Ch01 Nutrition, Food Choices, Health	30	31	1	2	3
4	5 LABOR DAY SmartBook: Ch02 Designing a Healthy Dietary Pattern SmartBook: Ch17 N&YH: Preventing Foodborne Illness Nutrition Lab 1: Computerized Dietary Analysis	6	7	8	9	10
11	12 SmartBook: Ch03 The Human Body: A Nutrition Perspective Nutrition Lab 2A: Lactose Digestion Beyond the Basics: Food Guides Around the World Extra Credit: Magnificent Microbiome	13	14	15	16	17
18	19 SmartBook: Ch04 Carbohydrates Nutrition Lab 2B: Lactose Digestion Extra Credit: Course Feedback Survey 1	20	21	22	23	24
25	26 SmartBook: Ch05 Lipids Nutrition Lab 3A: Lipids	27	28	29	30	1

Each week, assignments are due at 11:59 PM on Monday on the dates indicated above.

October 2022

HUMN NTR 2210D

SUN	MON	TUE	WED	THU	FRI	SAT
2	3 SmartBook: Ch06 Proteins Nutrition Lab 3B: Lipids Beyond the Basics: Alcohol & Binge Drinking	4	5	6	7	8 Unit 2 Exam (Chapters 4, 5, and 6)
9	10 SmartBook: Ch08 Overview of Micronutrients SmartBook: Ch09 Fluid & Electrolyte Balance Nutrition Lab 4A: Fluid Balance	11	12	13	14	15 AUTUMN BREAK
16	17 SmartBook: Ch10 Body Defenses Nutrition Lab 4B: Fluid Balance Extra Credit: Cancer Research	18	19	20	21	22
23	24 SmartBook: Ch11 Bone Health Nutrition Lab 5A: Vitamin & Mineral Supplements Beyond the Basics: Bone & Joint Health	25	26	27	28	29
30	31 SmartBook: Ch12 Energy Metabolism Nutrition Lab 5B: Vitamin & Mineral Supplements	1 NOV	2	3	4	5

Each week, assignments are due at 11:59 PM on Monday on the dates indicated above.

November/December 2022 HUMN NTR 2210D

SUN	MON	TUE	WED	THU	FRI	SAT
6	7 SmartBook: Ch13 Blood & Brain Health Beyond the Basics: Nutrition & Mental Health	8	9	10	11	12 Unit 3 Exam (Chapters 8, 9, 10, 11, 12, and 13)
13	14 SmartBook: Ch07 Energy Balance & Weight Control Nutrition Lab 6: Body Composition	15	16	17	18	19
20	21 SmartBook: Ch14 Sports Nutrition Extra Credit: No-Meat Athlete Nutrition Lab 7A: #nutrition	22	23	24	25	26 THANKSGIVING BREAK
27	28 SmartBook: Ch15 Eating Disorders Nutrition Lab 7B: #nutrition	29	30	1	2	3
4	5 SmartBook: Ch16 Undernutrition Beyond the Basics: Food Security Extra Credit: Course Feedback Survey Extra Credit: Detect an Error	6	7	8	9	10 Unit 4 Exam (Chapters 7, 14, 15, and 16)

Each week, assignments are due at 11:59 PM on Monday on the dates indicated above.



HUMN NTR 2210 (19982) ONLINE

Science of Human Nutrition

Autumn 2018: 3 credit hours, undergraduate

Course Syllabus

INSTRUCTOR

Angela Collene, MS, RDN, LD
385 Campbell Hall
collene.6@osu.edu

OFFICE HOURS

Tue/Thu/Fri 9:30 AM – 10:30 AM and
1:00 PM – 3:00 PM
or by request

GRADUATE TEACHING ASSISTANTS

Student Last Names A – O

Katie Stock
301 Campbell Hall
stock.117@osu.edu

Mon 3:00 PM – 4:00 PM
or by request

Student Last Names P – Z

Amy Sharn
265-T Campbell Hall
sharn.3@osu.edu

Mon 12:30 PM – 1:30 PM
or by request

COURSE DESCRIPTION

This course will address the basic principles of the biological science involving interactions between nutrients and physiological processes with emphasis on implications for human health.

PREREQUISITES

None

GENERAL EDUCATION (GE) GOALS AND EXPECTED LEARNING OUTCOMES

This course meets the goals of the Natural Science Component of the GE at The Ohio State University. Courses in Natural Sciences foster an understanding of the principles, theories, and methods of modern science; the relationship between science and technology; the implications of scientific discoveries; and the potential of science and technology to address problems of the contemporary world.

The specific Learning Outcomes below stem from the Natural Science Learning Outcomes.

LEARNING OUTCOMES

Upon completion of the course, the student will be able to:

1. Understand the basic biological aspects of nutrient requirements of humans.
2. Appreciate the complex interactions and synergism of nutrients upon physiological and cellular processes.
3. Recognize the linkages between nutrients and disease processes, body size, mental ability, and performance.
4. Understand key events in the history of nutritional science from the early discovery of the essential nutrients to the current discovery of the effects of nutrients on the human genome.
5. Determine how nutritional information is derived from the scientific method of investigation.
6. Evaluate reputable versus non-reputable sources of nutrition information.
7. Understand how methods of modern science are used in the assessment of nutritional status.
8. Understand the diverse social and cultural patterns that influence food preferences and their implications to nutrient status.
9. Understand the potential of modern science and technology to address nutritional problems of the contemporary world.
10. Utilize computer technology to assess dietary intake and activity levels compared to national recommendations.

MATERIALS & RESOURCES

Connect access code for Smith, A.M., Collene, A.L., and Spees, C.K. (2018). *Wardlaw's Contemporary Nutrition: A Functional Approach* (5th ed.). New York, NY: McGraw-Hill Education.

Students will use this access code to register for an online account with Connect, McGraw-Hill Education's digital learning platform. Connect includes access to the eBook and the digital learning tools (assignments, dietary analysis software) that are required for this course. Each student will need a unique access code; accounts cannot be shared.

There are **two options** for purchasing a Connect access code for this course:

- a. **From the university bookstore:** The access code will be printed on a card (ISBN 9781260252019). The cost is \$105.35.

OR

- b. **Directly from the publisher's website:** Purchase online with a credit card using the link from our course page on Carmen. The cost is \$79.00.

There is an option to add a printed (loose-leaf) version of the textbook for an additional \$30.00 after you register your account on the Connect website.

Additional resources (e.g., articles, videos, audio files) will be provided via Carmen.

COMMUNICATION

All students must have an active OSU email account and reliable access to the Internet. Emails sent from hotmail, yahoo, google, etc. may go to the spam boxes of your instructor or teaching assistants. It is best to send communication through your OSU account.

Carmen (<https://carmen.osu.edu/>)

All students are required to use Carmen, OSU's learning management system, which is based on the Canvas platform. Students should plan to access Carmen frequently throughout the week for announcements, discussions, learning resources, assignments, and grades. If you are new to Carmen, please see the guide to getting started at <https://resourcecenter.odee.osu.edu/carmencanvas/getting-started-canvas-students>.

E-Mail

Please feel comfortable emailing your instructor and teaching assistants throughout the semester. This is the main form of communication between students and instructing staff. Students should use email rather than discussion boards on Carmen to ask questions about personal concerns (e.g., grades). Our policy is to respond to emails within 1 business day (i.e., excluding weekends and university holidays). When authoring emails, please type "2210" at the beginning of the subject line of your email. If you do not receive a response to an email within 24 hours, please resend your email.

Your instructor will send weekly emails to summarize course progress, answer common questions, and remind you of upcoming tasks. Be sure to read these emails to stay informed, engaged, and on schedule. Weekly emails will typically be sent using Carmen's inbox. You can change your account settings in Carmen if you would like to forward course-related emails to another email address. Go to Account (on the left side of the screen in Carmen), select Settings, then add an email address (under Ways to Contact, on the right side of the page). As the semester goes on, weekly emails will be archived in the Getting Started module on Carmen. If you do not receive weekly emails from your instructor (collene.6@osu.edu), please contact OSU IT to resolve the problem (see below).

Carmen's Discussion Board

If you have general questions about the course that do not contain personal information and are likely to be relevant to other students in the course, post your questions on the discussion board in Carmen. Examples of general questions include clarifications of assignment instructions, questions about course content, or technical concerns. In a large, online course, it is very common for students to have similar questions. To avoid redundancy, please review recent questions and answers before posting a new question.

Getting Help with OSU Technology

For help with your password, university e-mail, Carmen, or any other OSU technology issues, contact the OSU IT Service Desk. Standard support hours are available at <https://ocio.osu.edu/help/hours>, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** (614) 688-HELP (4357)
- **Email:** 8help@osu.edu
- **TDD:** (614) 688-8743

FACE-TO-FACE MEETINGS

Meeting with the Instructor

If course content, assignment, or technology struggles arise, please contact the instructor via email for an appointment. Face-to-face meetings with the instructor can usually be accommodated on a walk-in basis during office hours (see page 1 of the syllabus). Office hours may vary due to faculty meetings, travel, or exam schedules, but will be posted weekly using the Calendar feature of Carmen. If scheduled office hours are not convenient for you, virtual meetings can be scheduled throughout the week with the aid of the Conferences tool available on Carmen.

Meeting with the Teaching Assistants

The teaching assistants are graduate students in nutrition who are available to help you master the course content and excel in the course. The TAs will post their office hours on the Carmen calendar each week. Visit the TAs during their scheduled office hours or email your assigned TA directly (see page 1) to schedule a meeting.

COURSE EXPECTATIONS

This is a 3-credit online course. You should expect to spend *at least* the same amount of time reading the text, engaging with online content, completing assignments, and reviewing course notes as you would spend for a face-to-face course (about 9 hours per week).

It can be very easy to fall behind in an online course. Any online course requires self-discipline to stay on track with readings and assignments. This course is designed in weekly increments, such that new material is released each Monday morning and assignments based on that material are due the following Monday at 11:59 PM. This layout is flexible enough to allow you to work wherever and whenever you choose, yet structured enough to encourage efficient accumulation and retention of knowledge. The instructor and TAs will support your learning with organized materials, weekly email updates, thoughtful feedback, and clear instructions throughout the semester. Please do your part by reading emails, maintaining a record of all due dates in your own calendar, and regularly visiting our course page on Carmen for news and assignments.

NETIQUETTE

As a member of a community of online learners, it is your responsibility to exhibit professional behavior and decorum in all modes of communication. Following the rules of etiquette on the Internet (netiquette) helps to improve the readability of your messages, keeps conversations focused, increases trust, and creates a more positive experience for all participants. Netiquette includes, but is not limited to, the following guidelines:

- Honor people's rights to their opinions; respect the right for people to disagree.
- Be professional; use language that is not considered foul or abusive.
- Respond to peers honestly, thoughtfully, respectfully, and constructively.
- Avoid writing in all caps; it conveys shouting and anger.
- Avoid colors like red and green for accessibility reasons; avoid font styles, colors, and sizes that are difficult to read.
- Address the ideas, not the person, when responding to messages or discussions.
- Be careful when using humor or sarcasm; without social cues like facial expressions or body language, a remark meant to be humorous could come across as offensive or hurtful.
- Don't distribute copyrighted materials, such as articles and images (most things online are not licensed as "fair use"). Share links to those materials (instead of copying/pasting them) and be sure to properly cite all sources to avoid unintentional plagiarism.

ASSIGNMENTS

Assignment due dates are all set from the beginning of the semester and are listed in multiple locations for your benefit.

1. Syllabus (last three pages)
2. Carmen calendar (see our course page)
3. Weekly emails

With all of these resources at your fingertips, you can find an effective way to stay on schedule. Stating that you "were not aware" of an assignment due date is not a valid excuse for an extension.

This course uses a variety of digital tools, including Carmen (OSU's learning management system) and Connect (a digital learning platform from McGraw-Hill that accompanies our eBook for the course). Whether the assignments are built in Carmen or Connect, you will be able to access them by simply clicking on the name of the assignment from our course page in Carmen. (The first time you access a Connect assignment, you will be prompted to register your course materials. On subsequent visits, you should be logged into Connect automatically.)

LearnSmart

LearnSmart activities will be how you encounter the chapters of our text, *Wardlaw's Contemporary Nutrition: A Functional Approach*. LearnSmart is an adaptive reading tool. As you read the pages of the eBook, you will notice that some text is highlighted. The highlighted text represents core content you will need to pass the course. I recommend that you read the chapters completely (i.e., turn off the highlighting feature) the first time through. You can turn the highlighting back on when you go back and study for exams.

As you read each chapter, you will be prompted to stop and answer questions based on what you have read. If you answer the questions correctly, you will move on quickly. If you get some questions wrong, LearnSmart will give you additional questions and resources to help you master the content. LearnSmart will also remember where you struggled with the content and present you with additional questions when you return to a chapter to review. The LearnSmart activities are set to take an average of 1 to 2 hours per week to work through those practice questions. Start LearnSmart activities early in the week and plan to spend 15 to 20 minutes per day to optimize retention.

LearnSmart activities are graded based on completion; an assignment is considered complete when you have answered a certain number of questions correctly. If you read the section first, you will move through the practice questions quickly. However, if you decide to skip the reading and just do the practice questions, it may take a longer time because LearnSmart will present you with more and more questions until you get a certain number correct.

LearnSmart activities are worth 5 to 10 points per chapter. Full credit is awarded once you have answered a set number of questions correctly. If you start a LearnSmart activity and make some progress, you will receive partial credit based on the number of correct questions you have achieved by the due date. If you do not start an assigned LearnSmart activity by the due date, you will receive a score of 0 for that activity. You may return to any LearnSmart activity to read and recharge, but your score for that activity is based on what you have achieved by the due date. If you complete all of the assigned LearnSmart activities on time, you can be assured of 150 points (of 1000 total points for the course).

Quizzes

After you complete your LearnSmart activities each week, work through the quiz (if one is assigned). Besides the traditional multiple choice and true/false questions, quizzes consist of a variety of interactive question types, such as labeling, classification, matching, and sentence completion activities. Quizzes will be scored based on the accuracy of your best of two attempts, so utilize the LearnSmart activities to familiarize yourself with the material *before* you take a quiz. There is no time limit for quizzes and you are welcome to reference your eBook and other course materials as you complete the quizzes (most items even provide a link to the relevant section in the eBook). You can also save your progress, close the browser, and resume at a later time. Please be aware that each student receives a set of questions that is randomly drawn from a pool of many questions, so your assignment may be different from that of your classmates. Points for late quiz submissions will be reduced by 10% per day late. When your final grade for the course is calculated, your two lowest quiz scores will be dropped.

HELPFUL TIP: To be assured of proper credit, make certain to click SUBMIT before the due date when you have completed your assignment.

Dietary Analysis

Within the first few weeks of the course, you will track and analyze your food and beverage intake for three days using NutritionCalc Plus, a dietary analysis program that is included in your course materials through Connect. Later, as you move through the chapters, you will complete three sets of questions to evaluate your dietary pattern according to what you have learned. Detailed instructions for dietary analysis assignments will be provided on Carmen. Late submissions are subject to a point deduction of 10% per day late.

Collaborative Learning Activities

Throughout the semester, you will participate in several critical thinking activities that encourage you to explore timely, relevant nutrition topics. These activities also provide an opportunity to interact with other students in the course. Typically, collaborative learning activities require you to read an article, watch a video, or listen to a podcast and then answer some questions or participate in a discussion about the topic. You will find links to collaborative learning activities from our Carmen course page.

Here are some tips for productive online discussions:

1. Adhere to the netiquette guidelines described on page 5 of the syllabus.
2. Read the instructions and stay on topic.
3. Elaborate! Instead of simply writing “I agree,” state why you agree, give an example, or refer to a thought-provoking resource.
4. Be mindful of proper spelling and grammar; proofread your posts before submitting them.
5. Support your opinions with credible, scientific evidence. Choose your sources wisely. The internet is a bottomless pit of health information—some is reliable, some is suspicious, and some is downright dangerous. In Chapter 2, you will learn how to identify reliable nutrition information. As you search online for health information, consider the credibility of the source and how current the information is. For more information on evaluating health information, see <https://medlineplus.gov/evaluatinghealthinformation.html>.
6. It is not acceptable to copy and paste content that has been written by someone else. To avoid plagiarism, even if you are paraphrasing, *always* cite your sources.

Extra Credit

Optional extra credit assignments will be available. All extra credit assignments must be submitted by 11:59 PM on the due dates listed in the course calendar if you would like them to be counted toward your grade. No extensions will be available for extra credit assignments and no additional individual requests for extra credit will be granted. Although extra credit assignments are optional, it is in your best interest to complete all of these assignments; they can only boost your grade (i.e., scores are counted out of 0).

Please note that the Carmen grade book does not provide a simple way to award extra credit points. Therefore, your overall grade may not change immediately after you complete an extra credit assignment. However, within a week after the due date for each extra credit assignment, the instructor will convert scores from up to 10/10 to up to 10/0 in the grade book.

EXAMS

There are five online proctored exams:

- Unit 1 Exam (available 09/11/18 – 09/15/18) covers Chapters 1 – 3
- Unit 2 Exam (available 10/02/18 – 10/06/18) covers Chapters 4 – 6
- Unit 3 Exam (available 10/23/18 – 10/27/18) covers Chapters 8 – 13
- Unit 4 Exam (available 11/13/18 – 11/17/18) covers Chapters 7, 14, and 16
- Unit 5 Exam (available 12/04/18 – 12/08/18) covers Chapters 18 – 20

Each exam will be available for five days and will be administered via Carmen using Proctorio, an online proctoring tool. Proctorio offers you flexibility to take your exams at the time and in the location of your choosing. Students are required to have a webcam (USB or internal) with a microphone and a strong and stable internet connection. During the course of an exam, Proctorio will record the testing environment. At this time, Proctorio only works in the Chrome browser. *If you intend to use Proctorio, you must use a device with a webcam, microphone, reliable internet connection, and Chrome browser and you should select a private space for each exam session where disruptions are unlikely and where recording devices can be enabled.*

Prior to the first exam, you will receive detailed instructions to download and use Proctorio. You will also have an opportunity to practice using it before the exam. To use Proctorio, you must be **over 18 years of age**. Additionally, the tool has **limitations in its accessibility** for students reliant upon screen readers and keyboard navigation. For more information about remote exam proctoring with Proctorio, see <https://resourcecenter.odee.osu.edu/carmencanvas/getting-started-proctorio-students>. If you have concerns about using an online proctoring tool for any reason, please work with your instructor to find an equivalent alternative.

Exam questions are drawn from a bank of many questions, so your exam will not be exactly like any of your classmates' exams, although it will cover the same content. Exams are timed and most are closed book/closed note. You may use a "cheat sheet" (one 8.5" x 11" piece of paper, front and back) for the Unit 3 exam (on vitamins and minerals) only.

Students are expected to take all exams within the scheduled dates, using remote proctoring software. If you require a make-up exam or alternative exam accommodations for any reason, please contact your instructor via email *prior to* the scheduled exam date. All exam dates are all set from the beginning of the semester and are listed in multiple locations for your benefit. Failure to responsibly manage your schedule is *not* a valid reason for a make-up attempt. If you do not take an exam or make arrangements for a make-up exam by 11:59 PM on the last day the exam is available, you will receive a 0 for the exam.

GRADING POLICIES

Progress will be regularly evaluated by student performance on assignments and exams. Dates for all assignments and exams are clearly indicated in the course calendar portion of the syllabus, on the Carmen calendar feature, and in email communications from the instructor. Detailed instructions will be provided for each assignment. For LearnSmart activities, no credit will be awarded for late submissions. Points earned for quizzes and the Dietary Analysis assignments will be reduced by 10% per day late. Students requesting an extension for any assignment should provide appropriate documentation and discuss the matter with the instructor *prior to* the due date.

Grading Point Distribution

The weights of each form of student evaluation are shown below. For a spreadsheet version of the point distribution that will accurately calculate your grade, see “How to Calculate Your Grade” in the Getting Started module.

<i>EXAMS (drop lowest score; 400 points = 40% of grade)</i>	
Unit 1 Exam	100
Unit 2 Exam	100
Unit 3 Exam	100
Unit 4 Exam	100
Unit 5 Exam	100
<i>LEARNSMART ACTIVITIES (150 points = 15% of grade)</i>	
LS Ch01: Nutrition, Food Choices, & Health	5
LS Ch02: Designing a Healthy Dietary Pattern	5
LS Ch03: The Human Body: A Nutrition Perspective	10
LS Ch04: Carbohydrates	10
LS Ch05: Lipids	10
LS Ch06: Proteins	10
LS Ch08: Overview of Micronutrients & Phytochemicals	5
LS Ch09: Fluid & Electrolyte Balance	5
LS Ch10: Nutrients Involved in Body Defenses	10
LS Ch11: Nutrients Involved in Bone Health	10
LS Ch12: Micronutrient Function in Energy Metabolism	5
LS Ch13: Nutrients that Support Blood & Brain Health	10
LS Ch07: Energy Balance & Weight Control	10
LS Ch14: Nutrition: Fitness & Sports	10
LS Ch16: Undernutrition Throughout the World	5
LS Ch18: Nutrition During Pregnancy & Breastfeeding	10
LS Ch19: Nutrition From Infancy Through Adolescence	10
LS Ch20: Nutrition During Adulthood	10

QUIZZES (drop 2 lowest scores; 200 points = 20% of grade)

Digital Learning Orientation	20
Nutrition Basics	20
Carbohydrates	20
Lipids	20
Proteins	20
Micronutrients I	20
Micronutrients II	20
Weight Management	20
Sports Nutrition	20
Pregnancy & Breastfeeding	20
Child Nutrition	20
Adult Nutrition	20

DIETARY ANALYSIS (200 points = 20% of grade)

All Daily Reports	50
Macronutrients	50
Micronutrients	70
Energy Balance	30

COLLABORATIVE LEARNING ACTIVITIES (50 points = 5% of grade)

MyPlate	10
Whole vs. Refined Grains	10
Saturated Fats and Heart Health	10
Ergogenic Aids	10
Fertility Diet	10

EXTRA CREDIT ACTIVITIES

Mediterranean Diet	+10
Cancer Research	+10
Fad Diet	+10
LS Ch15: Eating Disorders	+5
LS Ch17: Safety of Our Food Supply	+5
LEAP Trial	+10
Detect an Error	+unlimited
Course Feedback Request	+2

1000

HELPFUL TIP: Throughout the semester, Carmen calculates your grade based on the assignments and exams you have completed to date. Missed assignments may not be factored into the calculation. To see your actual grade (including any missed assignments) using the Carmen grade book, be sure to uncheck the option for "Calculate based only on graded assignments."

Grading Scale

A	=	930 – 1000 points
A-	=	900 – 929 points
B+	=	870 – 899 points
B	=	830 – 869 points
B-	=	800 – 829 points
C+	=	770 – 799 points
C	=	730 – 769 points
C-	=	700 – 729 points
D+	=	670 – 699 points
D	=	600 – 669 points
E	=	0 – 599 points

HELPFUL TIP: At the end of the semester, many students ask if their grades will be rounded up. Your grade will be rounded to the nearest whole point out of 1000 points and assigned a letter grade according to the scale shown above. This is not the same as rounding to the nearest percent. For example, if your total points for the semester are 929.5 out of 1000, this would be rounded up to 930 and you would earn an A for the course. However, if your total points are 925 out of 1000, this falls into the range of scores for A-. To maximize your points, turn in all assignments on time and take advantage of extra credit opportunities.

ACADEMIC INTEGRITY

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's *Code of Student Conduct*, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's *Code of Student Conduct* is never considered an "excuse" for academic misconduct; be sure to review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If the instructional staff suspects that a student has committed academic misconduct in this course, the instructor is obligated by University Rules to report these suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact the instructor.

For additional information about academic misconduct (integrity), refer to *Academic Misconduct Information for Students* (<https://oaa.osu.edu/academic-integrity-and-misconduct/student-misconduct>).

SPECIAL ACCOMODATIONS/DISABILITIES

The teaching team wishes to fully include persons with disabilities in this course. Please let your instructor know if you have a disability and require accommodations in the curriculum, instruction, or assessments of this course to enable you to fully participate. You may contact your instructor to discuss any specific needs. For students with documented disabilities, please contact the Office of Student Life Disability Services (<http://ods.osu.edu>) at (614) 292-3307 or visit Baker Hall to coordinate reasonable accommodations.

This course requires use of Carmen and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor. See [Carmen \(Canvas\) accessibility documentation](#).

MENTAL HEALTH STATEMENT

As a student, you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating, and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from one of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling (614) 292-5766. CCS is located on the 4th floor of the Younkin Success Center and 10th floor of Lincoln Tower. When CCS is closed, you can reach an on-call counselor at (614) 292-5766. 24-hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at (800) 273-TALK or suicidepreventionlifeline.org.

STATEMENT ON DIVERSITY

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

GRIEVANCES AND SOLVING PROBLEMS

According to University Policies, available from the Division of Student Affairs, if you have a problem with this class, “You should seek to resolve a grievance concerning a grade or academic practice by ***speaking first with the instructor or professor***: Then, if necessary, with the department chairperson, college dean, and provost, in that order. Specific procedures are outlined in Faculty Rule 3335-7-23, which is available from the Office of Student Life, 208 Ohio Union.” “Grievances against graduate, research, and teaching assistants should be submitted first ***to the supervising instructor***, then to the chairperson of the assistant’s department.”

COURSE EVALUATIONS

It is critical to the continued success of this course to have your honest and valued feedback. Near the end of the semester, you will have the opportunity to fill out the standard institutional SEI on the instructor (online submission). The instructor will also send you a separate course feedback survey via Carmen to gather more course-specific information.

August/September 2018

HUMN NTR 2210

SUN	MON	TUE	WED	THU	FRI	SAT
19	20	21	22	23	24	25
	Course Materials Available					
26	27	28	29	30	31	1
	Quiz: Digital Learning Orientation LS Ch01: Nutrition, Food Choices, and Health					
2	3	4	5	6	7	8
	LABOR DAY LS Ch02: Designing a Healthy Dietary Pattern Dietary Analysis: All Daily Reports Collaborative Learning: MyPlate					
9	10	11	12	13	14	15
	LS Ch03: The Human Body: A Nutrition Perspective Quiz: Nutrition Basics		Unit 1 Exam Available (Chapters 1 – 3)			
16	17	18	19	20	21	22
	LS Ch04: Carbohydrates Quiz: Carbohydrates Collaborative Learning: Whole vs. Refined Grains					
23	24	25	26	27	28	29
	LS Ch05: Lipids Quiz: Lipids Collaborative Learning: Saturated Fats & Heart Health Extra Credit: Mediterranean Diet					

October 2018

HUMN NTR 2210

SUN	MON	TUE	WED	THU	FRI	SAT
30	1 LS Ch06: Proteins Quiz: Proteins Dietary Analysis: Macronutrients	2	3	4	5	6 Unit 2 Exam Available (Chapters 4 – 6)
7	8 LS Ch08: Overview of Micronutrients & Phytochemicals LS Ch09: Fluid and Electrolyte Balance Quiz: Micronutrients I	9	10	11	12 AUTUMN BREAK	13
14	15 LS Ch10: Nutrients Involved in Body Defenses LS Ch11: Nutrients Involved in Bone Health Quiz: Micronutrients II Extra Credit: Cancer Research	16	17	18	19	20
21	22 LS Ch12: Micronutrient Function in Energy Metabolism LS Ch13: Nutrients That Support Blood & Brain Health Dietary Analysis: Micronutrients	23	24	25	26	27 Unit 3 Exam Available (Chapters 8 – 13)
28	29 LS Ch07: Energy Balance & Weight Control Quiz: Weight Management Extra Credit: Fad Diet	30	31	1	2	3

November/December 2018

HUMN NTR 2210

SUN	MON	TUE	WED	THU	FRI	SAT
4	5 LS Ch14: Nutrition: Fitness & Sports Quiz: Sports Nutrition Collaborative Learning: Ergogenic Aids	6	7	8	9	10
11	12 VETERAN'S DAY LS Ch16: Undernutrition Throughout the World Dietary Analysis: Energy Balance Extra Credit: LS Ch15: Eating Disorders Extra Credit: LS Ch17: Safety of Our Food Supply	13	14	15	16	17 Unit 4 Exam Available (Chapters 7, 14, and 16)
18	19 LS Ch18: Nutrition During Pregnancy & Breastfeeding Quiz: Pregnancy & Breastfeeding Collaborative Learning: Fertility Diet	20	21	22	23 THANKSGIVING BREAK	24
25	26 LS Ch19: Nutrition from Infancy Through Adolescence Quiz: Child Nutrition Extra Credit: LEAP Trial	27	28	29	30	1
2	3 LS Ch20: Nutrition During Adulthood Quiz: Adult Nutrition Extra Credit: Detect an Error Extra Credit: Course Feedback Request	4	5	6	7	8 Unit 5 Exam Available (Chapters 18 – 20)

GE Rationale: Foundations: Natural Science (4 credits)

Requesting a GE category for a course implies that the course fulfills all expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Natural Sciences, please answer the following questions for each ELO.

A. Foundations:

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Natural Science.

HUMN NTR 2210, The Science of Human Nutrition, is a 4-credit GE: Natural Sciences course described as covering the principles of biological science involving interactions between nutrients and physiological processes with emphasis on implications for human health. This course will provide lecture-based instruction and opportunities for experiential learning that demonstrate how the scientific method is used to establish requirements for nutrients essential for human growth, development, and maintenance, and conversely, how physiological processes impact needs for nutrients. Key discoveries in the areas of nutrition, biochemistry, and physiology are also emphasized. The impacts of technological developments within the context of health concerns are discussed. The course learning outcomes call for an understanding of the principles of the natural sciences and methods used in scientific discovery including the interactions among environment, dietary behaviors, physiological development, and maintenance of health. Students will apply nutrition science to improve human health and will develop skills to discern nutrition fact from fiction.

The specific course goals (CG) aligned with natural science learning objectives (ELO) for this course include the following:

GE Expected Learning Outcomes (ELO)	Course Goals (CG)
ELO 1.1 Successful students are able to explain basic facts, principles, theories and methods of modern natural sciences; describe and analyze the process of scientific inquiry.	CG 1. Students will describe and discuss the basic biological aspects of essential nutrient requirements of humans and the complex interactions between various nutrients and physiological and cellular processes.
	CG 2. Students will describe and discuss the influence of nutrient status on disease progression, body size, mental ability, and athletic performance.
	CG 3. Students will summarize how nutrition requirements change throughout the lifespan.
ELO 1.2 Successful students are able to identify how key events in the development of science contribute to the ongoing and changing nature of scientific knowledge and methods.	CG 4. Students will investigate key events in the history of nutrition science, from the early discovery of the essential nutrients to the current research on the interactions between nutrients (and phytochemicals) and genetics.
ELO 1.3 Successful students are able to employ the processes of science through exploration, discovery, and collaboration to interact directly with the natural world when feasible, using appropriate tools, models, and analysis of data.	CG 5. Students will explain how nutrition recommendations are derived using modern research methods.
	CG 6. Students will create and evaluate scientific research in the field of nutrition.
ELO 2.1 Successful students are able to analyze the inter-dependence and potential impacts of scientific and technological developments.	CG 7. Students will be able to communicate and critique how modern science and technology can be used to address nutritional problems of the contemporary world.
ELO 2.2 Successful students are able to evaluate social and ethical implications of natural scientific discoveries.	CG 8. Students will assess the social and ethical implications of modern science and technology, exploring potential harms and benefits for human health.
ELO 2.3 Successful students are able to critically evaluate and responsibly use information from the natural sciences.	CG 9. Students will be able to evaluate and critique reputable versus non-reputable sources of nutrition information.

Course Subject & Number: HUMNTR2210

The Science of Human Nutrition is foundational in the study of natural science because it introduces students to the scientific method of inquiry and basic concepts in biology, chemistry, and human physiology in a way that is completely relevant, understandable, and applicable to everyday life. Students engage with the steps of the scientific method from the perspective of early nutrition scientists who observed relationships between food intake and health outcomes, then formed and tested hypotheses about the identities and functions of nutrients. Human nutrition is an engaging way for students with little background in science to understand and apply biology and chemistry concepts.

B. Specific Goals for Natural Sciences

GOAL 1: Successful students will engage in theoretical and empirical study within the natural sciences, gaining an appreciation of the modern principles, theories, methods, and modes of inquiry used generally across the natural sciences.

Expected Learning Outcome 1.1: Successful students are able to explain basic facts, principles, theories and methods of modern natural sciences; describe and analyze the process of scientific inquiry. Please link this ELO to the course goals and topics and indicate specific activities/assignments through which it will be met. (50-700 words)

A combination of readings, lectures, and experiential/laboratory activities will facilitate an understanding and appreciation of the modern principles, theories, methods, and modes of inquiry in human nutrition. Specific course goals and topics associated with ELO1.1 are given below with special attention placed on newly designed laboratory activities designed to assist students in the process of scientific inquiry and discovery.

Course Goals	Activities and Assignments
<p>CG 1. Students will describe and discuss the basic biological aspects of essential nutrient requirements of humans and the complex interactions between various nutrients upon physiological and cellular processes.</p>	<p>Exam: Unit 1 Nutrition Lab 3A and B: Lipids Beyond the Basics: Alcohol & Binge Drinking Exam: Unit 2 Nutrition Lab 4A and B: Fluid Balance Nutrition Lab 5A and B: Vitamin and Mineral Supplements Beyond the Basics: Bone & Joint Health Beyond the Basics: Nutrition & Mental Health Exam: Unit 3 Exam: Unit 4</p>
<p>CG 2. Students will describe and discuss the influence of nutrient status on disease progression, body size, mental ability, and athletic performance.</p>	<p>Exam: Unit 1 Nutrition Lab 3A and B: Lipids Beyond the Basics: Alcohol & Binge Drinking Exam: Unit 2 Nutrition Lab 4A and B: Fluid Balance Beyond the Basics: Bone & Joint Health Beyond the Basics: Nutrition & Mental Health Exam: Unit 3 Beyond the Basics: Food Security Exam: Unit 4</p>
<p>CG 3. Students will summarize how nutrition requirements change throughout the lifespan (e.g., pregnancy, older adulthood).</p>	<p>Nutrition Lab 1: Computerized Dietary Analysis Beyond the Basics: Food Guides Around the World Exam: Unit 1</p> <p>Exam: Unit 2 Nutrition Lab 5A and B: Vitamin and Mineral Supplements Beyond the Basics: Bone & Joint Health Beyond the Basics: Nutrition & Mental Health Exam: Unit 3 Exam: Unit 4</p>

In the initial stages of each weekly lesson, students will engage in *theoretical* study within the science of human nutrition. Prior to lectures, assigned readings (e.g., textbook and selected articles from peer-reviewed scientific journals) and relevant activities will help to familiarize students with basic science principles, such as the scientific method, as well as nutrition terminology and core concepts for each lecture topic. Lectures and discussions will help to further clarify the core concepts. Beyond the Basics

Course Subject & Number: HUMNTR2210

activities prompt critical thinking about course topics and offer an opportunity for students to receive immediate feedback to correct misconceptions and reinforce learning.

In addition to theoretical study, students will engage in *empirical* study of the science of human nutrition. The course includes 12 experiential Nutrition Lab modules (described in further detail in our summary of ELO 1.3), and synthesizes previous lessons, helping the student to see how each lesson relates to what they have previously learned and how it relates to their own lives. Topics include computerized dietary analysis, digestion and absorption of nutrients, the relationship between dietary patterns and cardiovascular disease, dietary supplements, methods of body composition assessment, and evaluation of nutrition information in the media. During the first week of each of these experiential activities (pre-lab), students review written content, videos, and/or podcasts that introduce the topics covered in the lab. During the second week of each experiential activity, students will engage with simulated or hands-on laboratory experiments (depending on the resources involved and the practicality/cost of performing some experiences within students' homes), case studies, personal nutrition assessment, and/or survey data collection and analysis.

Expected Learning Outcome 1.2: Successful students are able to identify how key events in the development of science contribute to the ongoing and changing nature of scientific knowledge and methods. Please link this ELO to the course goals and topics and indicate specific activities/assignments through which it will be met. (50-700 words)

Course Goals	Activities and Assignments
<p>CG 4. Students will investigate key events in the history of nutrition science, from the early discovery of the essential nutrients to the current research on the interactions between nutrients (and phytochemicals) and genetics.</p>	<p>Beyond the Basics: Food Guides Around the World Exam: Unit 1 Nutrition Lab 2A and B: Lactose Digestion Nutrition Lab 3A and B: Lipids Beyond the Basics: Bone & Joint Health Beyond the Basics: Nutrition & Mental Health Exam: Unit 3 Nutrition Lab 6: Body Composition</p>

Nutrition is an evidence-based natural science that is dynamic in nature. As new research becomes available in the field, the state of the science evolves. In this course, students will identify many examples of early, groundbreaking discoveries in the history of nutrition science. For example, at the start of the course, as students refresh their knowledge of the scientific method, we illustrate the steps of the scientific method with the example of Dr. Joseph Goldberger’s work demonstrating that an inadequate diet, not germs, caused pellagra.

Throughout the course, students will also see many examples of the dynamic nature of nutrition science. For example, as they learn about common digestive disorders, they will complete a video-based activity that illustrates how the work of Barry Marshall and Robin Warren, who hypothesized that peptic ulcers were caused by a bacterial infection—an idea that flew in the face of the prevailing notion that stress and spicy foods caused ulcers. The Nobel Prize-winning work of Marshall and Warren revolutionized therapy for peptic ulcers. In the prelab for Nutrition Lab 3, students learn about the different types of lipids and their effects on indices of cardiovascular risk. They will learn how *trans* fatty acids, once widely used in food manufacturing, were recently banned from use based on emerging research evidence that showed negative impacts on the blood lipid profile. Furthermore, students learn about recent changes in public health recommendations for dietary cholesterol intake.

Students will learn about modern methods used in nutrition science. For example, in Nutrition Lab 6, students will have an opportunity to experience methods clinicians use to assess body composition. For nearly a century, clinicians have relied on a mathematical equation called Quetelet’s index—more commonly known as Body Mass Index (BMI)—to assess weight status. In fact, the World Health Organization has established weight status classifications based on BMI that are used globally to assess patients and inform medical therapy. Within the past few decades, health researchers have argued against the utility of BMI as a screening tool for several reasons. First, it is not a true assessment of body composition (i.e., fat mass versus lean mass). Second, the WHO weight status classifications are not appropriate for infants, children, adolescents, and older adults. Third, the standards were developed based on data primarily derived from young and middle-aged white adults and are not well correlated with body composition and health risks in other races. Modern methods are available to assess body composition more accurately: bioelectric impedance analysis, dual-energy x-ray absorptiometry, and air displacement plethysmography. Using these modern methods to validate their work, researchers have proposed new prediction equations that incorporate simple measures of weight and stature along with age, physical activity level, and race. In Nutrition Lab 6, students will explore these controversies in a video-based prelab activity, form hypotheses about the relationship between BMI and body composition, and test their hypotheses using live data collected by classmates, as well as data sets from the National Health and Nutrition Examination Survey provided by the instructor.

One of the most exciting areas of modern scientific discovery in the field of nutrition is nutritional genomics: the study of the interactions between nutrients (or other food components) and the human genome. Nutritional professionals have always been champions of personalized nutrition advice, and nutritional genomics will be a powerful new tool to enhance the personalization of nutrition recommendations for health promotion and disease treatment. In this course, students will learn about gene expression, the influence of genetic variations on nutrient requirements and risks for nutrition-related diseases, and the potential for nutrients and other food components to influence gene expression.

Expected Learning Outcome 1.3: Successful students are able to employ the processes of science through exploration, discovery, and collaboration to interact directly with the natural world when feasible, using appropriate tools, models, and analysis of data. Please explain the 1-credit hour equivalent experiential component included in the course: e.g., traditional lab, course-based research experiences, directed observations, or simulations. Please note that students are expected to analyze data and report on outcomes as part of this experiential component. (50-1000 words)

This one additional credit hour proposed for HN2210 will be dedicated to a variety of experiential learning activities (Nutrition Labs) that allow students to directly engage in the science of human nutrition. Most nutrition labs will span two weeks, and incorporate several related theoretical and experiential activities, and scaffolds new concepts upon existing knowledge. The proposed lab topics and alignment with course goals are below.

Course Goals	Activities and Assignments
<p>CG 5. Students will explain how nutrition recommendations are derived using modern research methods.</p>	<p>Nutrition Lab 1: Computerized Dietary Analysis Beyond the Basics: Food Guides Around the World Exam: Unit 1 Nutrition Lab 2A and 2B: Lactose Digestion Nutrition Lab 3A and 3B: Lipids Exam: Unit 2 Nutrition Lab 4A and 4B: Fluid Balance Nutrition Lab 5A and 5B: Vitamin and Mineral Supplements Beyond the Basics: Bone & Joint Health Beyond the Basics: Nutrition & Mental Health Exam: Unit 3 Nutrition Lab 6: Body Composition Nutrition Lab 7A and 7B: #nutrition Exam: Unit 4</p>
<p>CG 6. Students will create and evaluate scientific research in the field of nutrition</p>	<p>Nutrition Lab 1: Computerized Dietary Analysis Nutrition Lab 2A and B: Lactose Digestion Nutrition Lab 3A and B: Lipids Nutrition Lab 4A and B: Fluid Balance Nutrition Lab 5A and B: Vitamin and Mineral Supplements Nutrition Lab 6: Body Composition Nutrition Lab 7A and B: #nutrition</p>

Nutrition Lab 1: Computerized Dietary Analysis

- **Collect accurate dietary data (part of comprehensive nutrition assessment).**
- **Analyze dietary data using dietary analysis software.**
- **Compare and contrast various dietary data collection techniques**

Nutrition Lab 2A: Lactose Digestion

- **Describe the function of enzymes in digestion.**
- **Explain the physiological basis of lactose maldigestion.**
- **Observe the effects of environmental variations (i.e., temperature and pH) on enzyme activity.**

Nutrition Lab 2B: Lactose Digestion

- **Describe the function of enzymes in digestion.**
- **Discuss enzyme specificity.**
- **Predict the effects of enzymes on various substrates.**
- **Explain the physiological basis of lactose maldigestion.**
- **Use breath hydrogen data to diagnose lactose maldigestion.**
- **Suggest dietary strategies to ensure nutrient adequacy for individuals with lactose maldigestion.**

Nutrition Lab 3A: Lipids

- Describe the roles of lipoproteins.
- Relate blood lipid measurements to heart disease risk.
- Summarize the effects of various types of fatty acids and dietary fiber on blood lipoproteins.
- Evaluate personal and course-wide dietary data relative to public health recommendations from the Dietary Guidelines and American Heart Association.
- Assess cardiovascular disease risk using the online ASCVD calculator.
- Suggest dietary strategies to lower risk for cardiovascular disease.

Nutrition Lab 3B: Lipids

- Analyze the effect of a simple dietary intervention on blood lipids among college students.

Nutrition Lab 4A: Fluid Balance

- Predict the effects of isotonic, hypertonic, and hypotonic solutions on living cells.

Nutrition Lab 4B: Fluid Balance

- Assess hydration status using urine color and a chemical assay of urine specific gravity.
- Relate hydration status to simple assessments of mood, cognitive function, and physical performance.

Nutrition Lab 5A: Vitamin and Mineral Supplements

- Summarize differences in absorption, storage, and excretion of water-soluble vs. fat-soluble vitamins.
- Observe the excretion of water-soluble vitamins.

Nutrition Lab 5B: Vitamin and Mineral Supplements

- Observe the antioxidant activity of vitamin C.

Nutrition Lab 6: Body Composition

- Calculate BMI from stature and weight measurements.
- Use BMI to assess weight status of individuals.
- Compare BMI to true measures of body fatness.
- Evaluate the utility of BMI as a screening tool for obesity.

Nutrition Lab 7A: #nutrition

- Evaluate the safety and efficacy of a popular ergogenic aid.
- Analyze the effect of the ketogenic diet on athletic performance among college students.

Nutrition Lab 7B: #nutrition

- Determine the nutritional adequacy of a fad diet promoted on social media.
- Assess the impact of social media use on self-esteem and disordered eating behavior

The nutrition laboratories outlined above are designed to be completed in an online and/or at-home setting. Nutritional science lends itself well to at-home experimentation and we have capitalized on this by designing labs that involve a variety of modes of experiential learning, including direct experimentation, simulated experimentation, survey data collection, personal dietary analysis, analysis of a course sample data set, and case studies. A study by Rowe et al. (2017) suggests that students conducting online laboratories perform as well or better than students enrolled in traditional laboratory courses ([Rowe 2017](#)).

Many of these lab activities involve self-assessments and self-experimentation. Nutrition is perhaps the *most* applied science, as each of us must nourish our bodies several times per day. As described by Shier et al (1974), for students who are majoring in nutrition, such self-experimentation provides students with “first hand experience in the techniques and implementation of modified dietary regimens,” helping them to “become aware of the counseling that must be given patients to facilitate the

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adjustment of their dietary regimen.” For non-majors (the majority of our students in HUMN NTR 2210), nutrition self-experiments “emphasize the importance of the science for their everyday well-being as well as creating an awareness of the problems and limitations associated with studies involving human subjects” (Shier NW, Sim LS, Narins D, and Mickelsen O, 1974).

In Carmen, we have prepared an example of one fully developed laboratory activity which focuses on the digestion and absorption of lactose, the major carbohydrate found in dairy products. The title of this lab is “Lactose Digestion” and Weeks 1(A) and 2(B) of this lab can be accessed here: [Lactose Lab](#). The Lactose Digestion lab activity builds upon students’ theoretical understanding of the processes of carbohydrate digestion and absorption, and elucidates the basic concepts of gene expression, enzyme activity, nutrient absorption, osmosis, and bacterial fermentation.

GOAL 2: Successful students will discern the relationship between the theoretical and applied sciences, while appreciating the implications of scientific discoveries and the potential impacts of science and technology.

Expected Learning Outcome 2.1: Successful students are able to analyze the inter-dependence and potential impacts of scientific and technological developments. Please link this ELO to the course goals and topics and indicate specific activities/assignments through which it will be met. (50-700 words)

Course Goals	Activities and Assignments
CG 8. Students will be able to communicate and critique how modern science and technology can be used to address nutritional problems of the contemporary world.	Beyond the Basics: Bone & Joint Health Nutrition Lab 5A and B: Vitamin and Mineral Supplements Beyond the Basics: Nutrition & Mental Health Nutrition Lab 6: Body Composition Nutrition Lab 7A and B: #nutrition Beyond the Basics: Food Security Exam: Unit 4

Throughout the semester, students learn about nutritional strategies for the prevention or treatment of nutrition-related diseases. We explore how observational and experimental research has been used to make public health recommendations. We also trace how some nutrition recommendations have changed over time as new research data have become available. In addition, students will learn how nutrition science has been used in the formulation of food products to prevent and treat disease, such as fortification of foods (e.g., iodization of salt) and development of medical nutrition products (e.g., incorporation of plant sterols into food products marketed to lower cholesterol).

One application of nutrition science that particularly resonates with college students is the study of sports nutrition. Sports nutrition is a salient example of the interdependence and potential impacts of scientific and technological developments in nutrition. In Unit 4, students apply their foundational knowledge of nutrition functions and requirements to the realm of athletic performance. We learn how athletic training can impact nutrient requirements and how dietary strategies may be employed to enhance physical performance. Students learn about various ergogenic aids (i.e., sports supplements) – their benefits, risks, and the strength of evidence to support their use. Students also learn to be skeptical of marketing and media coverage of ergogenic aids, which is often overstated and not aligned with scientific evidence. A student evaluation of ergogenic aids is included as part of Nutrition Lab: #nutrition

Also in Unit 4, students learn about the individual and societal impacts of undernutrition. They learn how it affects individual physical health (e.g., immune function, work capacity) and mental health (e.g., intellectual ability), but also how it can affect the productivity and economic status of entire nations. We seek to understand the causes of global malnutrition, which extend far beyond limitations of food production and food distribution, and then examine ways that technological developments in nutrition can be used to address undernutrition. As part of Beyond the Basics: Food Security, students will investigate the roles of supplementation and food fortification to correct nutrient deficiencies, as well as the ways biotechnology can be used to increase food production or the nutrient content of foods.

We will also examine the risks and benefits of fortification of the food supply. For example, fluoridation of the water supply was instituted in many municipalities starting in 1945 to decrease rates of dental caries. However, many opponents of fluoridation argue that it is akin to providing medicine to all members of a population, regardless of their health status, and that current fluoridation standards should be reevaluated in light of the current widespread availability of topical oral fluoride treatments, such as toothpaste. Likewise, addition of folate to refined wheat flour and white rice has decreased the rate of neural tube defects. However, some citizens are concerned that consuming too much folate could mask symptoms of vitamin B -12 deficiency or that overexposure to folate during pregnancy may be associated with increased risk for autism spectrum disorders in offspring. These topics offer excellent opportunities for students to weigh the risks and benefits of nutrition technologies in Beyond the Basics: Bone & Joint Health and Beyond the Basics: Nutrition & Mental Health.

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Expected Learning Outcome 2.2: Successful students are able to evaluate social and ethical implications of natural scientific discoveries. Please link this ELO to the course goals and topics and indicate specific activities/ assignments through which it will be met. (50-700 words)

Course Goals	Activities and Assignments
CG 8. Students will assess the social and ethical implications of modern science and technology, exploring potential harms and benefits for human health.	Nutrition Lab 3A and B: Lipids Beyond the Basics: Bone & Joint Health Nutrition Lab 5A and B: Vitamin and Mineral Supplements Beyond the Basics: Nutrition & Mental Health Exam: Unit 3 Nutrition Lab 7A and B: #nutrition Beyond the Basics: Food Security Exam: Unit 4

The increased use of genetically modified organisms (GMOs) in food production illustrates the diverse social and ethical implications of natural scientific discoveries within the field of nutrition. In class we will discuss the safety and potential environmental impact of genetic engineering of our foods. The debate over GMOs is ongoing; in *Beyond the Basics: Food Security*, students have an opportunity to demonstrate their understanding of the diverse social and ethical implications associated with their increased use in our food supply.

In this course, we also explore the intersection of information technology and nutrition. Information technology has the potential to deliver nutrition information to a wide audience. However, the ease with which nutrition misinformation can be spread via the internet may have negative implications for consumer behavior. Use of social media to promote fad diets and diet culture in general is associated with increased risk for disordered eating behaviors, which can be harmful to human health. In **Nutrition Lab 7: #nutrition**, students will examine the impact of social media on nutrition on body image, self-esteem, and diet-related behaviors.

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Expected Learning Outcome 2.3: Successful students are able to critically evaluate and responsibly use information from the natural sciences. Please link this ELO to the course goals and topics and indicate specific activities/assignments through which it will be met. (50-700 words)

Course Goals	Activities and Assignments
CG 9. Students will be able to evaluate and critique reputable versus non-reputable sources of nutrition information.	Exam: Unit 1 Nutrition Lab 7A and B: #nutrition

Helping students become critical consumers of nutrition information is one of our guiding missions in this course. Students are overwhelmed daily with nutrition information and misinformation from friends, family, advertisements, self-help books, and social media. In this course, we aim to lead students to credible sources of nutrition information, instruct students to interpret scientific research on their own, and teach students to identify misinformation in the field of nutritional science.

For example, in Nutrition Lab 7A and B: #nutrition, students will locate a fad diet that is promoted online, then analyze the prescribed meal plan for nutrient adequacy. Students will identify one or more “red flags” that signal poor nutrition advice.