

NFS 3243
Advanced Nutrition – Online Class
Summer 2026
May 18 – June 26, 2026

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Prerequisites: NFS 2183 (biochemistry) or equivalent

Course Description:

This summer Advanced Nutrition (NFS 3243) class is offered as a completely online course. Students are expected to view all of the video recordings of lectures, as well as other online video lessons, in the order presented in the “Course Materials” folder of the BrightSpace course site. Students are also required to complete all 5 online quizzes and take a midterm and final exam.

Course Objectives:

After successfully completing this course, students will have an understanding of the chemistry and biochemistry of the various macro and micronutrients, and their roles and functions in the prevention of disease and the maintenance of optimal health. In addition, students will have a broad understanding of selected research tools used in basic and applied nutritional sciences research.

Textbook: No assigned textbook for this class. All learning materials (video lessons, readings, etc) are provided on the course BrightSpace site.

Grading:	Online Quizzes	20%
	Midterm Exam	40%
	Final Exam	40%

Course Schedule:

The summer course podcasts will be available for viewing from May 18th to June 26th. The midterm exam will be scheduled for Thursday or Friday, June 4th or 5th. The final exam will be scheduled for Thursday or Friday, June 25th or 26th (See “Exams” section below for more information).

To help you gauge your pace through the video lecture podcasts, online video lessons, and quizzes, view the order of topics below. As you can see, you should be through the “Carbohydrates: High Fructose Corn Syrup” (Lesson #21) podcast before the midterm exam on June 4th.

Although the final exam is “not cumulative,” there will certainly be topics covered on the final exam that were also covered in the first half of the course. For example, the first half of the course includes discussion of the various mechanisms of enzyme regulation. During the second half of the course, we will be examining various examples of these mechanisms of enzyme regulation. So you should be prepared to answer exam questions related to this topic on both the midterm and final exams.

Course Schedule of Topics, Quizzes, and Exams

Lesson #1 – The Structure of the Cell (22 minutes)

Lesson #2 – The Cell Membrane (15 minutes)

Lesson #3 – Cell Signaling Mechanisms (36 minutes)

Lesson #4 – Mechanisms of Enzyme Regulation (55 minutes)

Lesson #5 – Biological Energy-1 (34 minutes)

Lesson #6 – Biological Energy-2 (24 minutes)

Lesson #7 – Biological Energy-3 (38 minutes)

Lesson #8 – Digestion (46 minutes)

Online Quiz #1 – Due Tuesday, May 26 (midnight)

Lesson #9 – GERD (61 minutes)

Lesson #10 – Weight Loss Surgery (38 minutes)

Lesson #11 – Celiac Disease and Gluten Sensitivity (22 minutes)

Lesson #12 – Proteins: General Properties and Structure (29 minutes)

Lesson #13 – Proteins: Evaluation of Protein Quality (30 minutes)

Lesson #14 – Proteins: Role of Glutathione (51 minutes)

Lesson #15 – Proteins: Amino Acid Metabolism (41 minutes)

Online Quiz #2 – Due Monday, June 1 (midnight)

Lesson #16 – Carbohydrates: Intro to Structure and Metabolism (38 minutes)

Lesson #17 – Carbohydrates: Structure, Chemistry, and Importance of Reducing Sugars (26 minutes)

Lesson #18 – Carbohydrates: Maillard Reaction (35 Minutes)

Lesson #19 – Carbohydrates: Advanced Glycation End-Products (30 minutes)

Lesson #20 – Carbohydrates: Hormonal Regulation of PFK-1 (41 minutes)

Lesson #21 – Carbohydrates: High Fructose Corn Syrup (52 minutes)

Mid-Term Exam – Thursday, June 4th or Friday, June 5th (see “Exams” below for more info)

Lesson #22 – Lipids: Structure and Nomenclature (28 minutes)

Online Quiz #3 – Due Thursday, June 11 (midnight)

Lesson #23 – Lipids: Digestion and Absorption (32 minutes)

Lesson #24 – Lipids: Cholesterol (23 minutes)

Lesson #25 – Lipids: Peroxidation Chemistry (38 minutes)

Lesson #26 – Lipids: Lipoprotein Metabolism (70 minutes)

Lesson #27 – Lipids: Free Radicals, Reactive Oxygen Species, and Antioxidants (38 minutes)

Lesson #28 – Lipids: Review of Antioxidants Supplement Studies (31 minutes)

Online Quiz #4 – Due Wednesday, June 17 (midnight)

Lesson #29 – Lipids: Atherosclerosis (48 minutes)

Lesson #30 – Lipids: Omega-3 Fatty Acids and Fish Oil – Part I (35 minutes)

Lesson #31 – Lipids: Omega-3 Fatty Acids and Fish Oil – Part 2 (29 minutes)

Lesson #32 – Additional Aspects of Lipid and Alcohol Metabolism (63 minutes)

Lesson #33 – Obesity and Type II Diabetes (45 minutes)

Lesson #34 – Obesity and Inflammation (32 minutes)

Lesson #35 – Obesity: GLP-1 Medications

Online Quiz #5 – Due Tuesday, June 23 (midnight)

Lesson #36 – Diet and Cancer: Metabolism of Toxins (27 minutes)

Lesson #37 – Diet and Cancer -1 (37 minutes)

Lesson #38 – Diet and Cancer-2 (46 minutes)

Lesson #39 – Regulation of Dietary Supplements (51 minutes)

Final Exam –Thursday June 25th or Friday June 26th

(Please see “Exams” below for more info).

Weekly Microsoft Teams Meetings (optional):

Microsoft Teams Q&A and Exam Review Sessions: Every Tuesday evening I will host an optional Microsoft Teams video conference. These will be scheduled alternately at 7 pm or 8 pm each week. The schedule is indicated below:

Tuesday, May 26th at 8 pm: General questions and discussion.

Tuesday, June 2nd at 7 pm: Midterm exam review Q&A

Tuesday, June 9th at 8 pm: General questions and discussion.

Tuesday, June 16th at 7 pm: General questions and discussion.

Tuesday, June 23rd at 8 pm: Final exam review Q&A.

These video conference sessions will be scheduled to last one hour. Again, they are optional. You are not required to attend. They are simply an opportunity to ask any questions regarding the course material. I will email the Microsoft Teams meeting link a few days before the scheduled meeting times.

Exams:

IMPORTANT NOTE:

All students will be required to take the midterm and final exams online using an online proctoring service (Respondus Lockdown Browser and Monitor).

LockDown Browser + Webcam Requirement

This course requires the use of LockDown Browser and a webcam for online exams. The webcam can be the type that's built into your computer or one that plugs in with a USB cable.

Watch this brief video to get a basic understanding of LockDown Browser and the webcam feature.

<https://www.respondus.com/products/lockdown-browser/student-movie.shtml>

Download Instructions

Download and install LockDown Browser from this link:

<https://download.respondus.com/lockdown/download.php?id=488814272>

Once Installed

- Start LockDown Browser
- Log into BrightSpace Learn

Again, a few important things to know about this Respondus online proctoring service.

1. You will need to take the exams on a computer that is equipped with a webcam and microphone.
2. You will need to take the exams in a room without anyone else present.
3. You will need a government issued photo ID (to display to the webcam).
4. Be sure that your computer is connected to a dependable Internet connection at the time of the exam.

For more information regarding the use of the Respondus Lockdown Browser and Monitor, see the UVM link here:

<https://www.uvm.edu/it/kb/article/brightspace-respondus-monitor-for-students/>

Mid-Term Exam: The "online" midterm exam will be available at any time between Thursday, June 4th at 5 pm to Friday, June 5th at 10 pm. You simply need to schedule a 90 minute time slot to take the exam within this window.

Final Exam: The "online" final exam will be available at any time between Thursday, June 25th at 9 am to Friday, June 26th at 10 pm. Again, you simply need to schedule a 90 minute time slot to take the exam within this window.

You can take the midterm and final exams anytime you like during the date/time window indicated above. For example, you can take the midterm exam on Friday evening, June 5th, at 6 pm. Then just login to your BrightSpace account on the Respondus Lockdown browser to take the exam. Once you begin the exam, you will have 90 minutes to complete it (unless you have an approved ACCESS accommodation for more time). The exams are closed book and closed notes. I will be posting on BrightSpace a study guide to the exams about one week

before the exam dates. Also, a week or so before the midterm exam, I will post a short video on BrightSpace explaining the format of the exams.