

NFS 243
Advanced Nutrition – Online Class
Summer 2021
May 24 – July 2, 2021

NOTE: This is a preliminary syllabus. There may be some changes to the topics before the start of the summer session. These will be reflected in a final syllabus available before the start of the summer session.

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Prerequisites: PBIO 185 or NFS 183 (biochemistry) or equivalent

Course Description:

This summer Advanced Nutrition (NFS 243) class is offered as a completely online course. Students are expected to view all of the podcasts recordings of past semesters' lectures, as well as other online video lessons, in the order presented in the "Course Materials" folder of the Blackboard 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 Blackboard site.

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

Course Schedule:

The summer course podcasts will be available for viewing from May 24th to July 2nd. The midterm exam will be scheduled for Thursday or Friday, June 10th or 11th. The final exam will be scheduled for Thursday or Friday, July 1st or 2nd (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: Hormonal Regulation of PFK-1” (Lesson #21) podcast before the midterm exam on June 10th.

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, June 1 (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)

Lesson #16 – Proteins: Homocysteine Metabolism (40 minutes)

Online Quiz #2 – Due Monday, June 7 (midnight)

Lesson #17 – Carbohydrates: Intro to Structure and Metabolism (38 minutes)

Lesson #18 – Carbohydrates: Structure, Chemistry, and Importance of Reducing Sugars (26 minutes)

Lesson #19 – Carbohydrates: Maillard Reaction (35 Minutes)

Lesson #20 – Carbohydrates: Advanced Glycation End-Products (30 minutes)

Lesson #21 – Carbohydrates: Hormonal Regulation of PFK-1 (41 minutes)

Mid-Term Exam – Thursday, June 10th or Friday, June 11th (see “Exams” below for more info)

Lesson #22 – Carbohydrates: High Fructose Corn Syrup (52 minutes)

Online Quiz #3 – Due Thursday, June 17 (midnight)

Lesson #23 – Lipids: Structure and Nomenclature (28 minutes)

Lesson #24 – Lipids: Digestion and Absorption (32 minutes)

Lesson #25 – Lipids: Cholesterol (23 minutes)

Lesson #26 – Lipids: Peroxidation Chemistry (38 minutes)

Lesson #27 – Lipids: Lipoprotein Metabolism (70 minutes)

Lesson #28 – Lipids: Free Radicals, Reactive Oxygen Species, and Antioxidants (38 minutes)

Lesson #29 – Lipids: Review of Antioxidants Supplement Studies (31 minutes)

Online Quiz #4 – Due Wednesday, June 23 (midnight)

Lesson #30 – Lipids: Atherosclerosis (48 minutes)

Lesson #31 – Lipids: Omega-3 Fatty Acids and Fish Oil – Part I (35 minutes)

Lesson #32 – Lipids: Omega-3 Fatty Acids and Fish Oil – Part 2 (29 minutes)

Lesson #33 – Additional Aspects of Lipid and Alcohol Metabolism (63 minutes)

Lesson #34 – Obesity and Type II Diabetes (45 minutes)

Lesson #35 – Obesity and Inflammation (32 minutes)

Online Quiz #5 – Due Tuesday, June 29 (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 July 1st or Friday July 2nd (for online exam option). Please see “Exams” below for more info.

***Exams: IMPORTANT NOTE:
Due to the COVID-19 restrictions, all students will be required to take the midterm and final exams online using an online proctoring service (ProctorU).***

As mentioned above the proctoring service that we will be using is “ProctorU.” Here is a link to UVM’s portal to the ProctorU service.

<https://www.proctoru.com/portal/uvm>

ProctorU is a live online proctoring service that allows you to take your exam from the comfort of your home. ProctorU is available 24/7, however you will need to schedule your proctoring session at least 72 hours in advance to avoid any on demand scheduling fees. Creating a ProctorU

account is very simple. All you need to do is go to the link above. ProctorU also provides free technical support to ensure you have the best testing situation possible. That is available at:

www.proctoru.com/testitout

On this page you will also be able to test your equipment, learn about what to expect during your proctoring session, and ask any questions you may have about the proctoring process with a ProctorU representative. In order to use ProctorU you will need to have a high-speed internet connection, a webcam (internal or external), a windows or apple Operating System, and a government issued photo id. ProctorU recommends that you visit "testitout" link above prior to your proctoring session to test your equipment. For additional technical services needed before your exam, you can click on the button that says "connect to a live person."

The cost for use of the ProctorU service is \$25. This fee goes directly to the ProctorU company, and not to UVM. You will need to pay \$25 per exam for use of the service (total of \$50 for both the midterm and final exams). You can pay for this with a credit card or debit card at the time that you reserve your date and time to take the exam.

Again, a few important things to know about this 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.

Other requirements for the online proctoring are explained in the video tutorials. Again, you may choose to take the exams in person at UVM, if you prefer.

Mid-Term Exam: The "online" midterm exam will be available at any time between Thursday, June 10th at 5 pm to Friday, June 11th at 10 pm. You would 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, July 1st at 9 am to Friday, July 2nd at 10 pm. Again, you would

simply need to schedule a 90 minute time slot to take the exam within this window.

At least two weeks before the exam dates, you will need to login to your ProctorU account and make an “appointment” to take the exam within the date/time options listed above. For example, you can make an appointment to take the midterm exam on Friday evening, June 11th, at 6 pm. Then just login to your account on that date and time to take the exam. Once you begin the exam, you will have 90 minutes to complete it. The exams are closed book and closed notes. I will be posting on Blackboard a study guide to the exams about one week before the exam dates. I will also post on Blackboard an old Advanced Nutrition exam, to give you an idea of the style and format of the exam.