

11:709:401 Advanced Nutrition II: Energy and Micronutrients
M/Th at 10:20-11:40 FS-AUD or in Zoom when virtual
Spring 2024 Syllabus

| Day/Date | Topic | Instructor | Recommended Readings |
|------------------|--|----------------|--------------------------|
| 1/18 Thu | Course Introduction & DRIs | Anthony | Chap 2 & Canvas |
| 1/22 Mon | Water Balance | Anthony | Chap 32 & Canvas |
| 1/25 Thu | Electrolytes – Na, K, Cl | Anthony | Chap 31 & Canvas |
| 1/29 Mon | Nutrient Regulation of Gene Expression | Anthony | Chap 15 & Canvas |
| 2/1 Thu | Iron | Anthony | Chap 33 & Canvas |
| 2/5 Mon | Zinc, Copper, Manganese | Anthony | Chap 34 & Canvas |
| 2/8 Thu | Iodine | Anthony | Chap 35 & Canvas |
| 2/12 Mon | EXAM I – 1/18 - 2/5 material (NO IODINE) | Anthony | |
| 2/15 Thu | Selenium | Anthony | Chap 36 & Canvas |
| 2/19 Mon | Calcium, Phosphorus | Anthony | Chap 29 & Canvas |
| 2/22 Thu | Magnesium, Fluoride | Anthony | Chap 30, 37 & Canvas |
| 2/26 Mon | Vitamin K | Miller | Chap 25 & Canvas |
| 2/29 Thu | Vitamin D | Miller | Chap 28 & Canvas |
| 3/4 Mon | EXAM II – 2/8 - 2/29 material | Anthony/Miller | |
| 3/7 Thu | Vitamin A & Carotenoids | Miller | Chap 27 & Canvas |
| 3/11 – 3/15 | Spring Break | | |
| 3/18 Mon | Antioxidant mechanisms, Vitamin E & Vitamin C | Miller | Chap 24, 26 & Canvas |
| 3/21 Thu | Vitamin B6, Folate & Vitamin B12 | Miller | Chap 22 & Canvas |
| 3/25 Mon | Folate and Vitamin B12 (continued) | Miller | Chap 22 & Canvas |
| 3/28 Thu | Nutrigenetics and Nutrigenomics | Miller | Canvas & Canvas |
| 4/1 Mon | Niacin, Riboflavin, Thiamin, Pantothenate & Biotin | Miller | Chapters 21, 23 & Canvas |
| 4/4 Thu | EXAM III – 3/7 - 4/1 material | Miller | Posted in Canvas |
| 4/8 Mon | Human Energy Expenditure | Hoffman | Chap 17 & Canvas |
| 4/11 Thu | Human Body Composition | Hoffman | Chap 17 & Canvas |
| 4/15 Mon | Resting Metabolism | Hoffman | Chap 17 & Canvas |
| 4/18 Thu | Energy Balance and Physical Activity | Hoffman | Chap 17 & Canvas |
| 4/22 Mon | Energy Balance I: Obesity | Hoffman | Chap 20 & Canvas |
| 4/25 Thu | Energy Balance I: Undernutrition | Hoffman | Chap 20 & Canvas |
| 4/29 Mon | Growth and Energy Metabolism | Hoffman | Posted in Canvas |
| May 6 8-11 am | EXAM IV – 4/8 – 4/29 material | Hoffman | |

PROFESSORS AND TEACHING ASSISTANT (office hours by appointment):

Dr. Tracy G. Anthony, e-mail: tracy.anthony@rutgers.edu

Dr. Daniel Hoffman, e-mail : dhoffman@sebs.rutgers.edu

Dr. Joshua Miller, e-mail: jmiller@sebs.rutgers.edu

Teaching Assistant: Matthew Selby, e-mail: mls450@sebs.rutgers.edu

RECOMMENDED REFERENCE TEXT: Biochemical, Physiological and Molecular Aspects of Human Nutrition, by Martha H. Stipanuk and Marie A. Caudill, W. B. Saunders Publishers, 4th edition (copyright 2019). Additional readings will be available online. **Please note: Biochemistry (either Introductory Biochemistry or General Biochemistry) is a prerequisite for this class.** You may be

expected to consult your biochemistry textbook to refresh your memory of specific topics as they arise in class.

CLASS NOTES, LECTURES AND STUDY QUESTIONS:

Class notes, slide decks with and/or without audio, and study questions will all be available online in Canvas. Lectures that are synchronous (in-person) will **not** be recorded by the Instructors but you are welcome to record on your own.

OFFICE HOURS: Each instructor will hold virtual Open Office Hours by Zoom. Available times and virtual conference links will be posted in Announcements in Canvas. Students may also schedule one-on-one Office Hours by emailing a request to the specific Instructor.

OPTIONAL READINGS COURSE: There is an optional and very helpful course associated with this class: Adv Nutr. II – Readings 11:709:403 taught by Matthew Selby on Wednesdays at 2:00 – 3:20 pm OR 3:50 – 5:10 pm. This readings class is intended to help with understanding the material through active learning and by reviewing relevant biochemistry topics. Each week, study questions will be distributed, some or all of which will be due as homework the following week. To receive a grade for this course, active participation in class discussions is assessed alongside submitted homework and/or quizzes. **These study questions are available to all students registered for 11:709:401. Please contact the Teaching Assistant to avail yourself of these additional resources if you are having difficulty with the class material.**

LEARNING GOALS:

Through lectures, readings and class discussions, students will gain

1. an understanding of the dietary requirements, uptake, transport, metabolism and functions of vitamins and minerals.
2. knowledge of the consequences of vitamin and mineral deficiencies and excessive uptake.
3. an understanding of the physiological basis of human energy expenditure and body composition with a focus on endocrine and environmental factors that regulate food intake and energy metabolism and how various nutritional states (starvation, obesity) affect body composition and energy metabolism.

EXAMS: Learning outcomes will be assessed through 4 exams. Exams will contain multiple-choice, fill-in, true-false, and short essay questions. There will be an opportunity on each exam to earn extra credit. All exams will be held in the classroom and will be closed book, closed notes, and conducted online through the course Canvas site.

Exam 1 – 120 points (Learning goals 1 and 2)

Exam 2 – 120 points (Learning goals 1 and 2)

Exam 3 – 120 points (Learning goals 1 and 2)

Exam 4 -- 140 points (Learning goal 3)

TOTAL – 500 points

Exam 4 will be held during the Final Exam period and is **not comprehensive**. Online Final exam Schedule: <http://finalexams.rutgers.edu/>

Study questions or topic objectives will be posted with every lecture and they serve as an important guide to the material that will be tested.

Grading Scale:

The course grade is based on the total number of points earned on exams. You are encouraged to monitor your exams grades and use this information to help you maintain or improve subsequent exam scores in order to achieve the desired grade.

| Grade | Point Range | Percentage |
|--------------|--------------------|-------------------|
| A | 500 – 450 | 100-90 |
| B+ | 449 - 425 | 89-85 |
| B | 424 - 400 | 84-80 |
| C+ | 399 - 375 | 79-75 |
| C | 374 - 350 | 74-70 |
| D | 349 - 300 | 69-60 |
| F | < 300 | <60 |

Please note: There will be no additional last-minute extra credit assignments at the end of the semester. Please pay attention to your exam performance and avail yourself of the many opportunities to get help in understanding the material through attending all synchronous lecture and review sessions held by the Instructors and Teaching Assistant, reading the textbook chapters and any posted material, reviewing sample exams and answering available study questions, and making one-on-one appointments with the Instructors and/or the Teaching Assistant for extra help.

NOTES ABOUT MISSED EXAMS:

Make-up exams may be granted only under exceptional circumstances. It is the student's responsibility to contact the instructor prior to or within 24 hours of the missed exam to request and arrange a make-up exam date and time. Instructor approval is required to take a make-up exam and the student must be prepared to take the make-up within 1 week following the missed exam. Requests related to vacations or social gatherings will not be granted approval. Failure to follow these guidelines will result in a grade of F (0 points) on the missed exam.

POLICY ON THE USE OF ELECTRONIC DEVICES IN THE CLASSROOM:

Please restrict the use of electronic equipment during class to note taking and content learning. You are expected to use a laptop or tablet to take the exams, but you are not allowed access to other electronic devices of any kind or have access to any notes, powerpoints, websites, etc during the exam.

LEARNING GOALS FOR THE DIDACTIC PROGRAM IN DIETETICS:

2022 Core Knowledge for the RDN (KRDN) – Standards for the Didactic Programs in Dietetics: Rutgers University Department of Nutritional Sciences undergraduate Didactic Program in Dietetics is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (AND). The following ACEND Core Knowledge aptitudes are included within the curriculum of this course:

KRDN 1.1: Demonstrate how to locate, interpret, evaluate and use professional literature to make ethical, evidence-based practice decisions (i.e., active learning via discussions of case studies; exams).

KRDN 1.2: Use current information technologies to locate and apply evidence-based guidelines and protocols (i.e., active learning via discussions of case studies; exams).

KRDN 1.3: Apply critical thinking skills (i.e., active learning via discussions of case studies; exams).

KRDN 2.3: Assess the impact of a public policy position on nutrition and dietetics practice (i.e., active learning via discussions of case studies; exams).

KRDN 3.5: Describe basic concepts of nutritional genomics (i.e., active learning via discussions of case studies; exams).

ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>

Full policies and procedures are at <https://ods.rutgers.edu/>

ACADEMIC INTEGRITY

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy>

Any violation of academic integrity will NOT be tolerated and students will be put up for suspension, expulsion or failure due to severity. Cheating and plagiarism will not be tolerated and will be handled according to the policies in place at Rutgers.

DIVERSITY, EQUITY, INCLUSION AND BELONGING STATEMENT

The Department of Nutritional Sciences supports an inclusive learning environment wherein diversity and authenticity are valued. We are committed to creating a culture of belonging that respects the diverse voices of our students, faculty, and staff. We will continuously strive to create a curriculum and academic environment to reflect the community we serve while promoting excellence in innovation.

SEBS strives to be inclusive of all individuals regardless of race/color, national origin/ancestry, religion, age, sex/gender identity and expression, disability, genetic information, marital status, economic status, and veteran or military-affiliated status.

STUDENT WELLNESS SERVICES

The Rutgers University Student Assembly urges that this information be included at the end of every syllabus. Edit or delete as you wish:

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ www.rhscaps.rutgers.edu/

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Scarlet Listeners

(732) 247-5555 / <https://rutgers.campuslabs.com/engage/organization/scarletlisteners>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.