11:709:400 ADVANCED NUTRITION: Macronutrients
(Lecture list for 16:709:553)
FALL 2023 Tuesday/Thursday 4th (2.00pm-3.20pm)
CDL 102

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01:694:301, 01:694:403/404, 11:115:301 or 11:115:407/408 (or equivalent) is a prerequisite for this course

1	Sept	5	Carbohydrates/Fiber/HMO	Watford
2.		7	Digestion/Transport/Regulation/Glycolysis 1	Watford
3.		12	Glycolysis 2/Pentose Shunt/PDHC	Watford
4.		14	Tissue specific metabolism (recorded)	Watford
5.		19	Oxphos/Glycogen	Watford
6.		21	Gluconeogenesis/Problem Based Questions	Watford
7.		26	EXAM I	
8.		28	Dietary Protein: quantity and quality	Watford
9.	Oct	3	B6/Non-protein nitrogen metabolism	Watford
10.		5	Non-protein contn., Protein turnover	Watford
11.		10	Interorgan amino acid flux I: Gly/BCAA	Watford
12.		12	Interorgan II, Glut, GLN	Watford
13.		17	EXAM II	
14.		19	Lipids-Introduction to Lipids	Storch
9.		24	Lipids-Digestion and Absorption – Part I	Storch
10.		26	Lipids-Digestion and Absorption - Part 2	Storch
11.		31	Lipids-Lipoproteins	Sampath
12.	Nov	2	Lipids-Anabolic lipid metabolism	Sampath
13.		7	Lipids-Catabolic lipid metabolism	Sampath
14.		9	Lipids-Cholesterol	Sampath
15.		14	Lipids-CHD Part I	Sampath
16.		16	Lipids – CHD Park II/Problem Based Questions	Sampath
23.		21	EXAM III (officially a Thursday)	
			THANKSGIVING BREAK	
23.		28	Nitrogen Excretion	Watford
25.		30	Starvation/Exercise	Watford
26.	Dec	5	Diabetes 1	Watford
27.		7	Diabetes 2, Obesity, Metabolic Syndrome	Watford
28.		12	Alcohol, Problem Based Questions	Watford

FINAL EXAMINATION
12noon – 3.00pm
TUESDAY December 19th

The final grade will be determined based on the four examinations (% of total grade).

Examination 1 (20%)
Examination 2 (20%)
Examination 3 (35%)
Examination 4 (25%)

Textbook recommendation (not required)
Biochemical, Physiological and Molecular Biological Aspects of Human Nutrition, M.H. Stipanuk, M.A. Caudill, eds., Elsevier-Saunders, Third Edition 2013
Copies of the text are available in the Chang Library, Foran Hall.

Note: An additional course, 709:402 Advanced Nutrition I: Readings, is offered as a 1 credit option to this course. Two sections are scheduled: Monday 3.50-5.10pm and 2.00-3.20pm. The readings course will review problems and study questions based on the material covered in this class each week. The additional course is intended for those students who feel that their background and understanding of biochemistry limits their achievement in this course. Problems and questions discussed in 402 will be available for self-study for those students not taking 402.

COURSE DESCRIPTION
Prerequisites: 01:694:301 or 11:115:403, 404 or 01:694:407-408; all prerequisite courses must be completed with a grade of C or better; This course is acceptable as an elective for Biological Science (119), Biochemistry (115) and Animal Biotechnology (126), and is used to calculate the Science GPA for Medical School applications.

The course covers the comprehensive study of regulation of carbohydrate, lipid and protein metabolism at cellular and organized levels; integration of metabolism by hormones, diet and pathophysiological states. Overall, the course focuses on human nutrition and metabolism but includes evidence from experimental and domestic animals to illustrate mechanisms.

STUDENT LEARNING GOALS
Through lectures, readings and class discussions, including Problem Based Learning, students will gain:

1. A comprehensive understanding of the physiological and molecular basis of macronutrient metabolism and how various nutritional phases (absorptive through starvation) affect the digestion, processing and utilization of macronutrients.
2. An understanding of macronutrient metabolism during different physiological and pathological conditions (exercise, obesity, undernutrition, different types of diabetes mellitus, inborn errors of metabolism and dyslipidemias).
3. Knowledge of consequences of consuming excess or insufficient amounts of the macronutrients and the mechanisms involved (carbohydrates, lipids, proteins and alcohol).

Learning goals will be assessed by the 4 examinations.

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 problems; exams).

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

KRDN 3.5: Describe concepts of nutritional genomics and how they relate to medical nutrition therapy, health and disease. (i.e., active learning via discussions of case problems; exams).

Examinations will include multiple-choice, fill-in, true-false, matching, and short essay questions. Sample examinations may be posted as study guides.

Note about missed exams:
Make-up exams may be granted under exceptional circumstances. It is the student's responsibility to contact the instructor responsible for that exam prior to the missed exam to arrange a make-up exam date and time. Instructor approval is required to take a make-up exam.

Appropriate documentation verifying the circumstances for a missed examination must be provided to the instructor prior to taking the make-up examination.

Test or examinations missed on the grounds of medical circumstances must be supported by a Physician's Statement. Note: The Physician's Statement must be the original (copies are not acceptable) and must include a legible name and the telephone number and address of the physician's office; the physician's office may be contacted to verify that the forms were completed by the physician.

Tests or examinations missed on the grounds of non-medical circumstances must be supported by appropriate documentation, i.e. death certificates, obituary notice, automobile accident reports, airline/train/bus tickets/receipt for emergency travel, etc. and must include full details of destination, departure and return dates. Missing an exam for a vacation or social gathering, or due to employment are not acceptable reasons.

ACADEMIC INTEGRITY POLICY

Each student is responsible for understanding the RU Academic Integrity Policy. This policy will be strongly enforced. For all examinations and assignments, the students will be required to uphold the RU Honor Pledge, which states, "On my honor, I have neither received nor given any unauthorized assistance on this examination or assignment". All written assignments may be screened by an automated plagiarism detection service that compares student work against a large data base of past work (including not only published work but also previous student submissions).

The RU Academic Integrity Policy and code of student conduct are available at:
http://nbacademicintegrity.rutgers.edu/home/academic-integrity-policy/
https://studentconduct.rutgers.edu/processes/university-code-student-conduct