

NUTR 400: Introduction to Medical Nutrition (3 credits)

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Semester: Spring 2009

Time: 11:00-11:50 am Monday, Wednesday, Friday (Indicated on schedule by M, W, F)

Room: Room 0133 Rosenau Hall (RO)

Prerequisites: CHEM 101, 102 and BIOL 101 or equivalents; NUTR 240 recommended

Course Description: Covers the interaction of nutrients and human body functions (cell biology and physiology) and the relationship of diet to health and disease. An introduction to the principles of physiological metabolism of carbohydrates, lipids & proteins are emphasized. For advanced undergraduate students and graduate students needing to enhance their background prior to NUTR 600.

Lecture Schedule:	Topic	Reading (Chapter)	Anderson/ Gropper/others (Chapter)
Day, Date	"Overview"		
M, January 12	Human Nutrition; Determinants of Food Habits		*1, 3
W, January 14	American Eating Patterns & Chronic Diseases		*2
F, January 16	Food Composition; Nutritional Adequacy		*4, 5
M, January 19	MARTIN LUTHER KING HOLIDAY		
W, January 21	Nutritional Assessment		*6
	"Carbohydrates"		
F, January 23	Quiz; Carbohydrates: Forms and Digestion (CD Introduction; Begin reviewing Diabetes & Wt. Management CD)	§7	Δ4, #1, 4
M, January 26	Absorption, Transporters and Transport Processes	§7	Δ4, #5
W, January 28	Roles of Dietary Fiber and Gastrointestinal Function {Dietary Assessment assignment due; keep a copy}		*10, Δ2, 5; #8
F, January 30	Carbohydrates: Glycogenesis & Enzyme Regulation	§11, 23	Δ4
W, January 30	Carbohydrates: Glycogenolysis & Enzyme Regulation	§11	Δ4
M, February 2	Carbohydrates: Glycolysis	§8	Δ4
W, February 4	Carbohydrates: Pentose Phosphate/Hexose Monophosphate	§13	Δ4
F, February 6	Carbohydrates: Gluconeogenesis & Cori Cycle	§10	Δ4
M, February 9	Test (January 12 - February 4)		
W, February 11	Vitamin B complex: Thiamin, Riboflavin, Niacin, Biotin & Pantothenic Acid	§9, 28	Δ4, Δ9

F, February 13	Citric Acid Cycle & Mitochondrial Action	§9	Δ4 & Δ3
	"Lipids"		
M, February 16	Lipids: Forms, Food Sources, Digestion & Absorption	§15	*11, Δ6
W, February 18	Lipoproteins: VLDL, LDL & HDL Metabolism	§17, 18	Δ6
F, February 20	Cardiovascular Disease (CVD) Issues: Diet, Obesity & CVD (CVD: Begin reviewing Cardiovascular Disease CD)	CVD-CD	#41
M, February 23	Regulation of Fatty Acid & Cholesterol Synthesis	§16, 18	Δ6
W, February 25	Mobilize Fat Stores; Energy Production; Ethanol Effects	§16	#13
F, February 27	Functional Role of Phospholipids; Membranes, Receptors, Signals	§17	#43
	"Proteins"		
M, March 2	Proteins: Sources, Quality & Requirements	*12, Δ7	#2, 12
W, March 4	Test (February 6- 27)		
F, March 6	Proteins: Digestion, Absorption, & Function	§19	Δ7
March 6-15	SPRING RECESS		
M, March 16	Amino Acid Pool and Metabolism; Vitamin B6	§19	Δ7
W, March 18	Amino Acid Turnover; Urea Cycle	§19, 20	**8
F, March 20	Synthesis of Purines & Pyrimidines	§22	
M, March 23	DNA & RNA; Gene Expression	§29, 30	
W, March 25	Protein Synthesis; Intracellular & Extracellular Proteins	§31	
	"Vitamins & Minerals"		
F, March 27	Absorption and Function of Iron	*17, Δ12	#31
M, March 30	Iron Deficiency & Anemia; Lead, Iron & Heart Disease	*17, Δ12	#31
W, April 1	Folate and Vitamin B12: Digestion, Absorption and Function	§28	*19, Δ9
F, April 3	Vitamin K: Absorption and Function	§28	*15, Δ10 *16, 29
M, April 6	Nutrition & Bone Health: Calcium, Phosphorous & Vitamin D	§28	Δ10, 11 #27, 28
W, April 8	Test (March 2-April 1)		
F, April 10	GOOD FRIDAY HOLIDAY		
M, April 13	Absorption and Function of Zinc, Copper {Begin reviewing Nutrition and Cancer CD}	§27	*17, Δ12
W, April 15	Absorption and Function of Selenium and Chromium	*17, Δ12	#34, 46
F, April 17	Vitamin C: Absorption, Function and Requirements	§28	*14, Δ9

M, April 20	Carotenoids and Vitamin A: Absorption & Metabolism	§28	*15, Δ10
W, April 22	Vitamin E: Absorption and Function	§28	*15, Δ10
F, April 24	Energy Balance, Obesity and Weight Gain	§26, 27	*24, Δ15 Δ p512-25
M, April 27	Nutrition & Fitness	*23, Δ8	#39

Monday, May 4 (12:00-3 p.m.) **FINAL EXAMINATION** (Emphasis on April 3- April 27)

Textbook:

§ Champe, P.C., Harvey, R.A. and Ferrier, D.R., Lippincott's Illustrated Reviews: Biochemistry, 4th ed., Lippincott Williams & Wilkins, Baltimore, MD 2007

Reserve Readings: The following materials will be in the Reserve Reading room of the Health Sciences Library.

* Anderson, John J.B. Nutrition and Health: An Introduction. Carolina Academic Press, NC 2005 (QU145, A547n, 2005). ISBN 0-89089-365-9

Δ Gropper, S.S, Smith, J.L. and Groff, J.L. Advanced Nutrition and Human Metabolism, 4th ed., Wadsworth, Belmont, CA 2005 (QU145, G876a, 2005).

Champe, P.C., Harvey, R.A. and Ferrier, D.R., Lippincott's Illustrated Reviews: Biochemistry, 3rd ed., Lippincott Williams & Wilkins, Baltimore, MD 2005 (Reference Section of Health Sciences Library; QU18, C451b, 2005).

Stipanuk, M.H., Biochemical, Physiological, Molecular Aspects of Human Nutrition, 2nd ed., W.B. Saunders Co., Philadelphia, PA 2006 (QU145 B6144 2006).

‡Shils, M.E., Shike, M., Ross, A.C, Caballero, B. and Cousins, R.J. Modern Nutrition in Health and Disease, 10th edition, Williams & Wilkins, Baltimore, MD, 2006 (WB400 M691 2006).

**Whitney, E.N., Cataldo, C.B. & Rolfes, S.R., Understanding Normal & Clinical Nutrition, 6th edition, Wadsworth/Thomson Learning, CA 2002 (QU145 W618ua 2002).

Bowman, Barbara A. & Russell, Robert M., Present Knowledge in Nutrition, 9th ed., International Life Sciences Inst. Press, Washington, DC 2006 (QU145 P933 2006 v.1).

Institute of Medicine, Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium and Carotenoids, National Academy Press, Washington, DC, 2000 (Call No. QU145, D565, 2000).

Course Requirements:

Attendance is expected at all class meetings and at each exam. If a student anticipates missing a test for whatever reason, contact the instructor. If make-up exams are given, keep in mind that make-up exams are usually more difficult than those regularly scheduled.

Health Sciences Reserve (First floor):

Selected reference materials are placed on reserve for your use. You are welcome to photocopy any of these materials within the limits of photocopying laws at the Health Sciences Library.

Appointments:

You may make an appointment with me by calling my secretary at 966-7211 or by coming to room 2200 or by leaving a note on my office door (room 2207).

Grading: Evaluation of student performance will be based upon:

Tests- total of 60% for 2 of 3 tests*

Final Exam 30%

Dietary Assessments [10%]- January 21

*All students must take the final exam. I will drop your lowest grade for Test 1, 2 or 3, and the remaining two scores will each account for 30% of the final grade. If you miss a test for ANY reason, I will drop that score and automatically use the remaining two scores in the calculation of the final grade. Thus, there will be **no early or make-up tests.**

Compact Disks (CD's): Nutrition in Medicine compact disks will be viewed online and will be included on the appropriate tests (February 9, March 4 & April 8). Specific instructions of the first CD will be given Jan. 23.

Help Sessions: To be determined after the first class and feedback on class schedules.