

NUTR 400: Introduction to Medical Nutrition (3 credits)

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Semester: Spring 2010

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

Room: Room 0001 Hooker Center (HC)

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 11	Human Nutrition; Determinants of Food Habits		*1, 3
W, January 13	American Eating Patterns & Chronic Diseases		*2
F, January 15	Food Composition; Nutritional Adequacy		*4, 5
M, January 18	MARTIN LUTHER KING HOLIDAY		
W, January 20	Nutritional Assessment		*6
	"Carbohydrates"		
F, January 22	Quiz; Carbohydrates: Forms and Digestion (CD Introduction; Begin reviewing Diabetes & Wt. Management CD)	§7	• 4, #1, 4
M, January 25	Absorption, Transporters and Transport Processes	§7	• 4
W, January 27	Roles of Dietary Fiber and Gastrointestinal Function		*10, • 2, 5; #11
F, January 29	Carbohydrates: Glycogenesis & Enzyme Regulation	§11, 23	• 4
M, February 1	Carbohydrates: Glycogenolysis & Enzyme Regulation	§11	• 4
W, February 3	Carbohydrates: Glycolysis	§8	• 4
F, February 5	Carbohydrates: Gluconeogenesis & Cori Cycle	§10	• 4
M, February 8	Carbohydrates: Pentose Phosphate/Hexose Monophosphate; Metabolism of Ethanol	§13 *13 (pp 252-255)	• 4
W, February 10	Test (January 11 - February 3)		

F, February 12	Vitamin B complex: Thiamin, Riboflavin, Niacin, Biotin & Pantothenic Acid	§9, 28	• 4, • 9
M, February 15	Citric Acid Cycle & Mitochondrial Action	§9	• 4 & • 3
	"Lipids"		
W, February 17	Lipids: Forms, Food Sources, Digestion & Absorption	§15	*11, • 6
F, February 19	Lipoproteins: VLDL, LDL & HDL Metabolism	§17, 18	• 6
M, February 22	Regulation of Fatty Acid & Cholesterol Synthesis	§16, 18	• 6
W, February 24	Mobilize Fat Stores; Energy Production	§16	#16
F, February 26	Functional Role of Phospholipids; Membranes, Receptors, Signals	§17	#17
M, March 1	Review Session; Study Cardiovascular Disease (CD) via NIM	CVD-CD	#17
W, March 3	Test (February 5- March 1)		
	"Proteins"		
F, March 5	Proteins: Sources, Quality & Requirements	*12, • 7	#5
March 5-14	SPRING RECESS		
M, March 15	Proteins: Digestion, Absorption, & Function	§19	• 7
W, March 17	Amino Acid Pool and Metabolism; Vitamin B6	§19	• 7
F, March 19	Amino Acid Turnover; Urea Cycle	§19, 20	**8
M, March 22	Synthesis of Purines & Pyrimidines	§22	
W, March 24	DNA & RNA; Gene Expression	§29, 30	
F, March 26	Protein Synthesis; Intracellular & Extracellular Proteins	§31	
	"Vitamins & Minerals"		
M, March 29	Absorption and Function of Iron	*17, • 12	#36
W, March 31	Iron Deficiency & Anemia; Lead, Iron & Heart Disease	*17, • 12	#36
F, April 2	GOOD FRIDAY HOLIDAY		
M, April 5	Folate and Vitamin B12: Digestion, Absorption and Function	§28	*19, • 9
W, April 7	Vitamin K: Absorption and Function	§28	*15, • 10 *16, 29
F, April 9	Nutrition & Bone Health: Calcium, Phosphorous & Vitamin D	§28	• 10, 11 #31, 32
M, April 12	Test (March 3-April 5)		
W, April 14	Absorption and Function of Zinc, Copper {Begin reviewing Nutrition and Cancer CD}	§27	*17, • 12

F, April 16	Absorption and Function of Selenium and Chromium	*17, • 12	#39, 41
M, April 19	Vitamin C: Absorption, Function and Requirements	§28	*14, • 9
W, April 21	Carotenoids and Vitamin A: Absorption & Metabolism	§28	*15, • 10
F, April 23	Vitamin E: Absorption and Function	§28	*15, • 10
M, April 26	Energy Balance, Obesity and Weight Gain	§26, 27	*24, • 15 • p512-25
W, April 28	Nutrition & Fitness	*23, • 8	

Monday, May 3 (12:00-3 p.m.) **FINAL EXAMINATION** (Emphasis on April 7- April 28)

Textbook:

§ Champe, P.C., Harvey, R.A. and Ferrier, D.R., Lippincott's Illustrated Reviews: Biochemistry, 4th ed., Lippincott Williams & Wilkins, Baltimore, MD 2008 (QU 18.2 C451b 2008)

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

• 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 are encouraged to send questions to Mary Catherine Shafer by email. You may make an appointment with me by sending me an email or by leaving a note with contact information on my office door (room 2207).

Grading: Evaluation of student performance will be based upon:

Tests- total of 66% for 2 of 3 tests*

Final Exam 34%

*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 10, March 3 & April 12). Specific instructions of the first CD will be given Jan. 22.

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