

SYLLABUS
BIOCHEM / NUTR SCI 510
BIOCHEMICAL PRINCIPLES OF HUMAN AND ANIMAL NUTRITION
FALL 2010

9/3	Course mechanics, introduction to nutritional biochemistry	
9/8	Carbohydrate - digestion, transport	Ch. 2,3,4
9/10	- glucose metabolism, glycogen storage & release	Ch. 2,3,4
9/13	Quiz 1; - fructose/galactose, glycolysis, gluconeogenesis	Ch. 2,3,4
9/15	Lipids - digestion, transport	Ch. 2,3,6
9/17	- metabolism, hormonal control, ketosis	Ch. 2,3,6
9/20	Quiz 2; - anabolism and catabolism	Ch. 2,3,6
9/22	- eicosanoids, cholesterol metabolism	Ch. 2,3,6
9/24	Protein - digestion, transport;	Ch. 2,3,7
9/27	Quiz 3; - metabolism of carbon skeleton, gluconeogenesis	Ch. 2,3,7
9/29	- nitrogen removal	Ch. 2,3,7
10/1	Integration of metabolism	
	(Exam 1 material ends)	
10/4	Energy regulation - starvation, diabetes type I	Ch. 8,15, 252-5
	EXAM 1: Tuesday, October 5, 7:15-9:15 pm	
10/6	- diabetes type II, obesity	Ch. 8,15, 252-5
10/8	Overview of Micronutrients	pp. 338-42
	Vitamins and energy metabolism I: Acyl/acetyl transfer (B5)	
10/11	Vitamins and energy metabolism II: Redox cofactors (niacin, riboflavin)	pp. 329-38
10/13	Vitamins and energy metabolism III: Carboxylations (biotin)	pp. 342-8
10/15	Vitamins and energy metabolism IV: Decarboxylations (thiamin)	pp. 323-8
10/18	Vitamins and energy metabolism V: Decarbox, trans- & deaminations (B6)	pp. 364-9
10/20	Vitamins and blood function I: 1-carbon transfer reactions (folate)	pp. 348-57
10/22	Vitamins and blood function II: 1-carbon transfer reactions (B12)	pp. 358-63
	(Exam 2 material ends)	
10/25	Vitamins and blood function III: blood clotting (Vitamin K)	pp. 409-16
	EXAM 2: Tuesday, October 26, 7:15 - 9:15 pm	
10/27	Antioxidant nutrients I: Overview	pp. 417-25
10/29	Antioxidant nutrients II: Vitamin E and carotenoids	pp. 401-8
11/1	Antioxidant nutrients III: Vitamin C and Se	pp. 311-21, 506-12
11/3	Metal nutrients I: Fe	pp. 470-87
11/5	Metal nutrients II: Cu and Zn	pp. 488-505
11/8	Nutrients and hormones I: Iodine	pp. 517-21
11/10	Nutrients and hormones II: Vitamin A	pp. 373-90
11/12	Vitamins, minerals, and bone health I: Ca, Mg, P	pp. 431-41
11/15	Vitamins, minerals, and bone health II: Vitamin D	pp. 392-400
11/17	Fiber - metabolism, cardiovascular disease, and cancer	Ch. 5
11/19	Alcohol	101-104
	(Exam 3 material ends)	
11/22	Nutrition and cancer	
	EXAM 3: Monday, November 22, 7:15 - 9:15 pm	
11/24	No class	
11/29	Cardiovascular Disease - cholesterol synthesis, metabolism	139-148
12/1	- lipoproteins and CVD	139-149
12/3	Genetics and Nutrition	168-171
12/6	Nutrition, metabolism, & athletic training – 1	243-251
11/8	Nutrition, metabolism, & athletic training – 2	
12/10	Critical interpretation of nutrition claims	Ch. 16
12/13	Food additives, nutraceuticals and dietary supplements	
12/15	Course wrap-up and review	
	FINAL EXAM: Monday, December 20, 7:25 pm – 9:25 pm (cumulative)	