

**NSC 308: Nutrition and Metabolism**  
**Spring 2013 Syllabus**  
**MWF 10:00-10:50am / ILC 150**

**Instructor:**

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**Textbook:** *Nutritional Sciences, from fundamentals to food* by McGuire and Beerman. Third edition  
Supplemental material will also be placed on D2L.

**Prerequisites:** MCB 181 or PSIO 201, CHEM 241A (or concurrent enrollment)

**Course Description:** This course will use basic science concepts to explain nutrient function, metabolism and interaction in humans. This course will cover the metabolic and physiological functions of nutrients at the molecular, cellular, tissue, organ and system level, integrating the effects of nutritional status in health and disease. An emphasis will be made on current research as it applied to content covered in the class. We will have a short online quiz over material in the book prior to the beginning of each lecture section. Presentations will be given by groups of students on a topic not covered in class (every Friday) and attendance material will be filled out each week. Recent papers pertaining to a topic related to lectures will be analyzed and three exams will be given. Final grade determination is based on the scale provided below.

**Course Objectives:**

- ❖ Students will develop an understanding of nutrient metabolism and function in humans.
- ❖ Students will develop an up-to-date knowledge of the role of nutrients as related to health and disease states, including cancer, diabetes, and cardiovascular disease.
- ❖ Students will develop an understanding of the dietary and drug modalities used in humans to treat diseases associated with poor nutrition, including efficacy and risk/benefits of these treatments.
- ❖ Students will develop the ability to analyze current articles/reviews in the field of basic science and clinical trials as they relate to the topics of the course.

**Course Requirements:**

- ❖ Students will be quizzed to identify essential nutrients and their function in normal health and disease.
- ❖ Students will give an oral presentation (team of 6-10) pertaining to a disease state and corresponding nutritional concerns. Relevance of current media reports is encouraged.
- ❖ Students will complete three exams, which are comprehensive for material covered up to that point.

**Course Policy:** Attendance is crucial for success in this course as this class is delivered both electronically and through lectures. We will have discussions and cover topics in class that will appear on quizzes and exams. You will be responsible for knowing due dates for presentations, quizzes and exams. In case of a foreseeable absence, you will be responsible for making arrangements to complete work BEFORE leave. There is no such thing as a

"make-up" in this class - no exceptions. The deadlines for turning in work are rigid. You must use the textbook and login to D2L regularly.

If you are sick, you must have a note from Student Health or a legitimate doctor's office in order to receive additional time to complete the assignment.

**Students with Disabilities:** Students with disabilities who require reasonable accommodations to fully participate in course activities or meet course requirements must register with either the Disability Resource Center (<http://www.drc.arizona.edu>) or the S.A.L.T. Center (<http://salt.arizona.edu>). If you qualify for services through DRC or SALT, bring your letter of accommodations to class as soon as possible. These letters also contain the name of the individual Specialist who works with each student so that direct contact can be made if there are any concerns. Students are required to present these letters prior to being provided disability related accommodations.

**Incompletes:** Incompletes will be issued on an individual basis and only if the first ¾ of the course has been completed.

**Instructor's Requirements of Students:**

- ❖ Cell phones **MUST** be turned off during class!
- ❖ Talking during class demonstrates a lack of respect for your teacher and peers. If your behavior is distracting, you may be asked to leave the classroom.

**Scholastic Ethics:** All students at the University of Arizona are considered responsible adults and, as such, are accountable for their own personal behavior. All students are expected to conform to local, state and federal laws. The Code of Academic Integrity of the University of Arizona places the responsibility on each student for the conduct and integrity of all academic work submitted as homework or examinations. The guiding principle of academic integrity is that a student's submitted work, examinations or projects are that student's own work. Students must in no way misrepresent or be party to another student's failure to maintain academic integrity. Copies of the Code are available from the Office of the Dean of Students, 203 Old Main Hall. Failure of any student to maintain the integrity of any assignment will result in an automatic grade of 0 points on that assignment, and a written notification of this grade, and the reason for it, to the student, the Department Head and Office of Resident Instruction, College of Agriculture. **Please note that students failing to maintain the academic integrity of their work diminish their own education and discredit the academic community.**

**Grade Determination:** **The points you earn from quizzes, the presentation, presentation attendance, paper evaluations, and exams will determine your grade. The ten highest quiz grades will be included in the grade calculation; therefore the lowest quiz grade will be dropped. The ten highest presentation attendance grades will be included in the grade calculation; therefore the lowest grade will be dropped. Extra credits will be given for the food drive (2EC for 5 cans) and attending a NSC graduate student seminar presentation, followed by an assignment. Since the graduate student seminars are on Wednesdays from 12-1 pm and not all students will be able to attend, you may substitute this extra credit with another assignment featured in the dropbox. This will be an either/or situation, you will not get credit for completing both assignments. These will be the only opportunities for extra credit.**

		Possible Points
Quizzes	10 pts each (best 10 scores)	100 pts
Presentation	100 pts	100 pts
Presentation attendance	5 pts each (best 10 scores)	50 pts
Paper evaluations	10 pts each	30 pts
Test #1	100 pts	100 pts
Test #2	100 pts	100 pts
Test #3	100 pts	100 pts
<b>Total Possible Points</b>		<b>580 pts</b>

**Grade Assignment:**

- A 522 - 580
- B 464 - 521
- C 406 - 463
- D 348 - 405
- E Below 347

**Presentations:** This is a group project consisting of 6 students per group. On Friday, January 11th, you will select a topic which you would like to research from a list which will be distributed during class. Your group will be comprised of all of the students that have signed up for the same topic. You will be responsible for collecting your group's contact information. You should select a team leader for your group who will be responsible for making sure that the research is evenly distributed and that deadlines are met. This student will be responsible for communicating with your TA.

**Presentation Guidelines:** Each presentation will be 50 minutes long. Time will be considered when grading so be sure to use the entire duration of the class for your presentation allotting 5 minutes of questions at the end. Those who go over this time will be stopped and those who are under will be penalized. Since there will be approximately 6 students per group and 45 minutes for presenting, you will each have about 7.5 minutes to present your topic.

**Steps to Presentation:**

**3 weeks prior-** Completion of "Presentation Outline" which can be found under **Presentation Materials** on D2L. This document should be emailed to the TA.

**2 weeks prior-** Completed powerpoint presentation emailed to TA for edits

**1 week prior-** Edited powerpoint presentation emailed to TA for final edits

**2 days prior-** Final version of powerpoint emailed to TA to be uploaded to D2L

**Day of presentation-** Make sure to get to class early in order to upload your presentation. Please dress in business casual attire for this presentation. You may have flash cards for guidance but you will be penalized if you are reading off of the flash cards or PowerPoint slides. Please come prepared!

**\*\*The Only Exception:** The first presentation is Friday, February 1st, therefore the group will **only** have 3 weeks to prepare and as a result they will be graded leniently. This group needs to have their presentation outline completed 2 weeks prior and a completed PowerPoint presentation emailed to the TA **one week prior** in order to have enough time to make any necessary edits.

**Presentation Requirements:**

\*Please review the presentation entitled "**Sample Presentation**" to see what is expected of your presentation.

1. **Title Page:** This should include the topic of your presentation, along with the names of all of the students in your group.
2. **Table of Contents**
3. **Introduction:** This should include all required background knowledge of your topic. You must assume that your audience has no prior knowledge of the topic being presented.
4. **Association with Nutrition:** How is the topic related to or effected by nutrition. This could be a certain food, food group, diet, or overall nutrition.
5. **Metabolic Pathways:** You need to include clear diagrams of associated metabolic pathways. One diagram should include a pathway associated with you disease. Another diagram should show how nutrition affects

this pathway. The more diagrams you include and can fully explain, the better your presentation will be, therefore, use what will enhance the understanding of your project.

6. **Research:** Provide a 1-2 slide summary of what research has concluded about your topic and its relation to the aspect of nutrition which you have selected. Additionally, using PubMed, you must select 3 good quality research papers which examine your topic in relation to this aspect of nutrition. This is the meat of your presentation. We expect you to focus most of your time understanding the study design, the sample included, methods, analysis, results, and conclusions. Utilize the TA for whatever you do not understand or for guidance.
7. **Overall Conclusions**
8. **Future Directions:** What research could be conducted in this field that hasn't been done yet? Would you use a different design, sample, length of study? How can these future directions minimize the limitations of the study?
9. **Works Cited:** All sources need to be from legitimate search engines or websites. All need to be properly cited.

**Presentation Grading:** All students are required to attend Friday presentations regardless of whether or not they are presenting. If you are not presenting, you will need to bring a printed copy of the grading rubric and complete it for attendance points.

\*Advice: it may be beneficial to print 9 copies of the grading rubric at the beginning of the semester so that you won't forget throughout the semester. If you are not presenting, you will not need to grade your own presentation, you will receive credit for attendance. The group's grade will be determined based on the average determined by the class and the average determined by Dr. Limesand and the TA.

**Papers:** There will be 3 quality research papers which you will read and submit an assignment to the "Dropbox" on D2L. Please see below for the paper deadlines. All 3 papers will be available at the beginning of the semester and will open until their deadline. As a result, you may complete all of the assignments as soon as they are available. Since the assignments will be available at the start of the semester, there will be **no exceptions on acceptance** past the due date. Please plan accordingly.

**Quizzes:** Quizzes **will not be accepted** after the due date (matter of fact, you will not be able to access the assignments after this date) and students are welcome to work ahead. All assignments are open for at least two weeks (quiz 1 is the only exception) and will be submitted through D2L according to the directions. Don't wait until the last day the assignment is open to begin because technical difficulties and Internet outages are not valid excuses. **NO HARD COPIES WILL BE ACCEPTED.** Students that need technical help in submitting assignments can attend office hours or seek out help in OSCR computer labs.

You will have **1 hour** to complete the assignment once you have hit "begin quiz" (these are real-time hours, not only logged-in hours). You will want to be familiar with the chapters covered in the quiz before you hit 'begin quiz'. Follow instructions carefully! Pay attention to directions on how to express your answers. These assignments are autograded and you must **spell correctly** and follow instructions in order to earn the points. Read your questions carefully and read back your answer to yourself to make sure you are using the **correct tense** and that your answer makes sense. The best ten quiz scores will be used in the grade calculation and D2L will be set at the end of the semester to automatically drop the lowest grade. **Due dates are set for 10:00 am of the listed day ACCORDING TO THE CCIT SERVER CLOCK!!**

**Subject to Change Notice:** Other than the grading or attendance policies, the course syllabus is subject to change at the discretion of the instructor.

**Lecture Plan:** The following course outline provides an estimate of the time to be spent on the particular topics. Quizzes, papers and midterm dates will be held on listed dates.

<b>Course Outline:</b>		<b>Topic:</b>		
January	15	W	Introduction;	
	17	F	Presentation and paper evaluation how to; groups and topics chosen	
	20	M	No Class – M. Luther-King Day	
	22	W	The Science of Nutrition	Ch 1
			<i>*Quiz #1: Syllabus</i>	
	24	F	Nutritional Assessment	Ch 2
	27	M	Chem, Biol & Physio Aspects of Nutrition	Ch 3
	29	W	Carbohydrates	Ch 4
		<i>*Quiz #2: Ch 4</i>		
	31	F	Carbohydrates	Ch 4
February	3	M	Lipids	Ch 6
			<i>*Quiz #3: Ch 6</i>	
	5	W	Lipids	Ch 6
	7	F	<b>Presentation #1- Galactosemia</b>	
			<b>Paper #1 Due</b>	
	10		Proteins by Jennifer Rickets, PhD, RD	Ch 5
			<i>*Quiz #4: Ch 5</i>	
	12	W	Proteins by Jennifer Rickets, PhD, RD	Ch 5
	14	F	<b>Presentation #2- Celiac Disease</b>	
	17	M	Review	
	19	W	<b>EXAM #1</b>	
21	F	<b>Presentation #3- Phenylketonuria</b>		
24	M	Metabolism (I) Ch 7		
		<i>*Quiz #5: Ch 7</i>		
	26	W	Metabolism (II) Ch 7	
	28	F	<b>Presentation #4- Cardiovascular Disease</b>	
March	3	M	Metabolism (III)/Alcohol Metabolism	Ch 7
	5	W	Diet and Health: Diabetes	
	7	F	<b>Presentation #5- Medium-Chain Acyl-CoA Dehydrogenase Deficiency</b>	
			<b>Paper #2 Due</b>	
	10	M	Energy balance and body wt	Ch 8
			<i>*Quiz #6: Ch 8</i>	
	12	W	Body weight and Health	Ch 8
	13	F	<b>OFF</b>	
	17-21		<b>Spring Break</b>	
	24	M	Sports Nutrition by Jennifer Rickets, PhD, RD	Ch 9
		<i>*Quiz #7: Ch 9</i>		
26	W	Sports Nutrition by Jennifer Rickets, PhD, RD	Ch 9	
28	F	<b>Presentation #6- Maple Syrup Urine Disease (MSUD)</b>		
31	M	Review		
April	2	W	<b>EXAM #2</b>	
	4	F	<b>Presentation #7- Wilson's Disease</b>	
	7	M	Fat soluble Vitamins	Ch 11
			<i>*Quiz #8: Ch 11</i>	
	9	W	Fat soluble Vitamins	Ch 11
	11	F	<b>Presentation 8- Hereditary Hemochromatosis</b>	
			<b>Paper #3 Due</b>	
	14	M	Water soluble Vitamins	
			<i>*Quiz #9: Ch 10</i>	
	16	W	Water soluble Vitamins	Ch 10
	18	F	<b>Presentation #9- Tangier's Disease</b>	
21	M	Major Minerals	Ch 12	
		<i>*Quiz #10: Ch 12</i>		
	23	W	Major Minerals	Ch 12

	25	F	<b>Presentation #10- Cystic Fibrosis</b>	
	28	M	Trace Minerals	Ch 13
			<i>*Quiz #11: Ch 13</i>	
	30	W	Trace Minerals Ch 13	
May	2	F	<b>In class discussion on video-counts toward Presentation attendance</b>	
	5	M	Diet and Health: Cancer	
	7	W	Review	
	9	F	<b>EXAM #3 10:30 am - 12:30 pm</b>	