

# Syllabus: BIO/FSN 127 Human Nutrition and Biology

Spring 2009

Tue/Th 10:00 to 12:40 Teacher: James De La Rosa, Ph.D

*This course fulfills part of the general education laboratory science requirement at Pima Community College and also transfers to the University of Arizona under the liberal arts or business AGECE. It has been designed to provide the student with a thorough survey of human nutrition and related biology*

**Prerequisites:** None. It is recommended that students read at least at the twelfth grade level since there will be required reading assignments from the textbook. Students should also be comfortable with elementary mathematics (including percentages and proportions).

**Course Goals:** To provide the student with information about the science of nutrition, nutrition process, and current nutrition issues; to provide an opportunity for the student to think critically about nutrition; to provide meaningful nutrition labs that give the students the opportunity for data analysis and experimental design.

**Office Hours:** My office is in the O-2 building, room 213, and my office hours are from 11-12 on Monday & Wednesday, and 9-10am on Tuesday and Thursday. My office phone number is 206-7670, and I can be reached by email at [jdelarosa@pima.edu](mailto:jdelarosa@pima.edu)

**Textbooks:** Understanding Normal and Clinical Nutrition 8<sup>th</sup> edition (no other edition will work).

**Exams:** There will be four exams. There will be no make-up exams.

**Withdrawal:** The absolute last day to withdraw from the class is **April 9<sup>th</sup>**. (The last day to drop and obtain a refund by February 2<sup>nd</sup>.) If a student fails to attend class, or fails to withdraw herself/himself from the course, the student will be issued the grade earned based on the number of points the student has accumulated and the total number of possible points for the course.

**Incompletes:** An incomplete will only be given if a student has completed all the work for the first ten weeks of this course, has a "C" or better grade, has a valid and verifiable excuse for not being able to finish the course, and has requested an "incomplete".

**Plagiarism:** If plagiarism is suspected, you will be called in to discuss your writing with the instructor. Any student using the direct words of others (be they students or some source) will be penalized with a zero for that assignment.

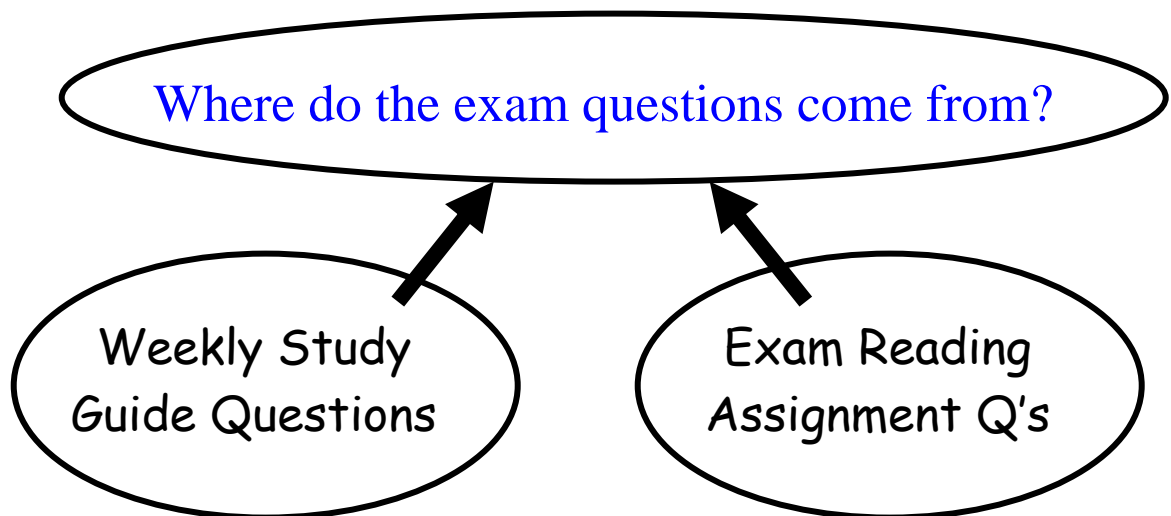
**Other:** Cell phones must be on silent mode, and all emergency calls must be taken outside the classroom. **NO TEXTING DURING LECTURE. NO LAPTOP USE OTHER THAN TAKING LECTURE NOTES DURING LECTURE.**

**Ethics:** Breaches in scholastic ethics, such as cheating on an exam, will be dealt with severely. Students caught cheating, or attempting to cheat, on an exam will have a "zero" recorded for that exam.

# BIO/FSN 127 Human Nutrition and Biology Point-By-Point Description

## 1. Exams (Required)

- 1.1 There will be four exams, each worth 200 points.
- 1.2 Exams will be given in class.
- 1.3 There will be no make-up exams unless the instructor is notified ahead of time, and the reason must be valid and verifiable. Only serious emergencies will be considered valid. *Not being able to find a baby sitter, or not having enough time to study are not valid reasons.*
- 1.4 Exam questions will be randomly selected from the weekly study guides, and the rest from textbook reading assignments (via the *127 Exam Reading Assignment Study Guides*, which will be given out in class). The order of the multiple choice answers will be changed.
- 1.5 All exam questions will be either true or false or multiple choice.
- 1.6 Again, exams cannot be made-up nor can they be re-taken.



## 2. Laboratories and LAB REPORTS (Required)

- 2.1 Each laboratory will be written up as a LAB REPORT which will be graded based on content, effectiveness of written communication, neatness, and degree of organization.
- 2.2 LAB REPORTS will only be accepted if the student participates in the entire laboratory.
- 2.3 LAB REPORTS must also be written by each individual student in his or her own words, unless otherwise specified in writing.

**2.4 Laboratories cannot be made-up if missed.**

2.5 LAB REPORTS are due when the instructor says they are due.

2.6 LAB REPORTS will not be accepted late.

2.7 LAB REPORTS can be handwritten, but any part that is illegible will be considered missing.

**2.8 If more than two laboratories are missed, the student will be issued an “F”, incomplete, and will be required to complete the missing labs in the following semester, unless the student does not qualify for an “incomplete” (see page 1 of this syllabus), in which case, they will be given a grade of “D” or “F” (whichever, the grade indicates).**

**3A In-Class Assignments = ICA (Required)**

3.1 These will include critical thinking quizzes and other exercises, such as case studies.

3.2 These in-class assignments may come unannounced.

3.3 There will be no opportunity to make these up (even if missed due to tardiness).

**3B Power Point Presentation (100 points per student)**

Students will work in groups of two. They will select a nutrition topic and give an 10 to 15min Powerpoint presentation to the class. Students will turn in a copy to the instructor. Presentations will start the week of April 13<sup>th</sup> . Students will sign up for their presentation topic and date. No more than 3 groups can present on any given day.

**Outside-Class Assignment = OCA**

**Each OCA Assignment is Required & Will Not Be Accepted Late**

**4.1.1 3-Day Food Record 50 Points**

4.1.2 You will evaluate your 3-day food record with an approved online site.. If there are items in your diet that are not in the software’s data base, look them up at the USDA nutrient database web site ([http://www.nal.usda.gov/fnic/cgi-bin/nut\\_search.pl](http://www.nal.usda.gov/fnic/cgi-bin/nut_search.pl) ) and include them in your analysis.

4.1.3 Include a printout of the analysis/report called “bar graph” describing the average nutrient content for all the meals for a 3 day period. However, you will still need to evaluate the other reports provided by the software to do a thorough analysis (e.g. “ratios and proportions” and “spreadsheets”). **(5 points)**

4.1.4 Present a thorough discussion of the results by making a nutrient-by-nutrient analysis of

the results. Comment on possible deficiencies, excesses, and the health consequences of each. Also include suggestions on how to improve the diet. There is a 2 page minimum for this section. You will be graded based on your use of critical thinking skills and how well you demonstrate college level writing skills. (An energy analysis is not required.) Consider any nutrient consumed at less than 70% of the recommended to be of concern with respect to a nutrient deficiency. **(45 points)**

- 4.1.4 This assignment must be typed to be accepted (12 point font and double spaced).
- 4.1.5 See the *Addendum A* checklist before completing this assignment.
- 4.1.6 The complete report is due **Tuesday April 28<sup>th</sup>**.

**3 Day Food Record Grading Rubric 50 Points Possible**

Thorough discussion of nutrients & possible deficiencies as indicated by the software. **41 points**  
Discussion of trans fats intake. **2 points**  
Discussion of omega-3 fatty acid intake. **2 points**  
Inclusion of the correct printout. **5 points**

**If any sentence from the software is copied, the entire assignment will receive zero points.**

- 4.2 Textbook Homework Assignments (THA)
- 4.3 These are to be answered and turned in class on corresponding exam day.

**5. Essays 50 points total (25 points each).**

5.1 Each student must turn in any two essays from the topics listed below.

- A) Describe the digestion and absorption of a bean and cheese burrito. In particular, describe the digestion and absorption of the protein, carbohydrate, and lipid. Discuss where they are digested and details of absorption (e.g. into capillaries or lacteal of the villus)
- B) Compare/contrast the “dumping syndrome” and lactose intolerance. Do not just describe each, but directly compare/contrast different features.
- C) Describe the causes and consequences of the “insulin resistance syndrome” (metabolic syndrome).
- D) Describe the process of atherosclerosis to the level described in the tutorials and textbook.
- E) Describe osteoporosis how nutrition relates to this disease.
- F) Describe hypertension and how nutrition relates to this disease.

**5.2 Each essay should be typed, 2 pages minimum and 3 pages maximum, 12 point font, double spaced, and 1 inch margins.**

**DUE DATES: One essay is due Tuesday March 3d , the other is due Tuesday April 28<sup>th</sup> .**

**If any sentence from the textbook is copied word for word, the entire assignment will receive zero points.**

**6.0 Extra Credit. (Optional).**

6.1 Students may do two extra essays at 25 points each for extra credit. See section 5.1 for topics.

6.2 Due Tuesday April 28<sup>th</sup>

**EXAM & QUIZ DATES.**

<b>DATE</b>	<b>EXAM or QUIZ</b>
<b>EXAM 1</b>	<b>Laboratory Reports</b>
<b>EXAM 2</b>	<b>First essay</b>
<b>EXAM 3</b>	<b>3-Day Food Record &amp; second Essay</b>
<b>EXAM 4</b>	<b>All Extra Credit</b>
<b>LAB QUIZ #1</b>	
<b>LAB QUIZ #2</b>	

**DUE DATES.**

<b>DUE DATE</b>	<b>ASSIGNMENT</b>
<b>Usually the day the lab is completed unless otherwise specified</b>	<b>Laboratory Reports</b>
<b>In class on exam day.</b>	<b>Textbook Homework Assignment (THA)</b>
<b>Tuesday, March 4<sup>th</sup></b>	<b>First essay</b>
<b>Tuesday, April 29<sup>th</sup></b>	<b>3-Day Food Record &amp; second Essay</b>
<b>Tuesday, May 13<sup>th</sup></b>	<b>All Extra Credit</b>

**Assignments will not be accepted late.  
Also, assignments not stapled & in correct  
order will suffer a 5 point deduction.**

**WARNING: Leaving these assignments, for the Last Minute  
Can Be Hazardous to Your Mental Health (and your grade).**

## **7. Grades.**

The final grade will be based on the percentage of total points earned.

[See student tally sheet on page 8.]

A = 92 to 100% SUPERIOR,	B = 80 to 91% ABOVE AVERAGE		
C = 70 to 79% AVERAGE	D = 60 to 69% BELOW AVERAGE	F = $\leq$ 59%	FAILURE

<u>WEEK of</u> (week #)	<u>LECTURE TOPIC</u> {Associated Textbook Chapters}	<u>LAB</u>
1-20 (# 1)	Introduction & The Science of Nutrition	Evaluation of Nutritional Studies (Lab #1)
1-26 (# 2)	The Science of Nutrition / Bio-molecules & the Cell	Subjects in a Nutrition Study (Lab #2) Bio-molecules (Lab #3)
2-02 (# 3)	Digestion & Absorption, Enteral and Parenteral Nutrition <i>Film: Digestion/Breakdown</i>	Artificial Sweeteners and Fats (Lab #4)
2-9 (# 4)	Eating Disorders, and Disorders of Upper and Lower GI	Microscope, the Cell, and Digestive System Lab (Lab # 5)
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2-16 (# 5)	<b>EXAM 1, Tuesday, February 17<sup>th</sup></b> Carbohydrates: Nutrition & Metabolism, the Glycemic Index, & Hypoglycemia	Food Frequency Questionnaire Data Analysis (Lab #6)
2-23 (# 6)	Carbohydrates: Nutrition & Metabolism Type I and II Diabetes Mellitus <i>Film: Hormonal Control (10 min DVD)</i> , <i>Film: Diabetes &amp; Women (VHS 25min)</i> <b>Rodeo Holiday 2-26 to 2-27</b>	Enzymes & Digestion (Lab # 7)
3-02 (# 7)	Proteins, Nutrition & Severe Stress, Disorders of the Kidney	Postprandial Blood Glucose (Lab # 8)
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3-9 (# 8)	<b>EXAM 2, Tuesday, March 10<sup>th</sup></b> <b>LAB QUIZ #1, Thursday March 12<sup>th</sup></b> Lipids & Cardiovascular Disease	Lipid Particles (Lab #9)
3-16	<b>March 16 to 23 SPRING BREAK</b>	
3-23 (# 9)	Fiber, Nutrition & Disorders of Blood Vessels, Heart, and Lung <i>Film: Supersize Me (90 min DVD)</i> <i>Film: Cholesterol Time Bomb (20 min VHS)</i>	Blood Cholesterol Lab (Lab # 10))
3-30 (# 10)	Vitamins, Antioxidants, and Disorders of the Liver	Dietary Fiber Lab (Lab #11)
4-06 (# 11)	Minerals, Hypertension, Osteoporosis ICA: Case Studies	Blood Pressure & Hypertension Lab (Lab # 12)
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4-13 (# 12)	<b>EXAM 3. Tuesday April 14<sup>th</sup></b> Energy & Body Weight, Food Safety	CVD Risk (Lab # 13)
4-20 (# 13)	Energy & Body Weight, Food Safety Calculation of TEE <i>Film: You On a Diet (45min, DVD)</i>	Energy Metabolism Lab (Lab #14)
4-27 (# 14)	Medicinal & Anti-medicinal foods, Nutrition & Cancer, & Food Safety/Microbiology <i>Film: Herbal Remedies a Matter of Safety(30min, VHS)</i>	Stability of Vitamin C Lab (Lab # 15)
5-04 (# 15)	Nutrition & AIDS, and Wasting Disorders <i>Film: Raw Terror: E.coli Bacteria(25min, VHS)</i>	Food Microbiology Lab (Lab # 16)
5-1 (# 16)	Nutrition and Development and the Later Years, the Nutrition Care Process & Review <i>Film: Harvest of Fear(last part, DVD)</i> <b>LAB QUIZ #2, Thursday May 4<sup>th</sup></b>	No lab scheduled
	<b>Exam 4, Thursday May 14<sup>th</sup></b>	<b>This schedule may change at the discretion of the instructor.</b>

## BIO/FSN 127      Student Tally Sheet

<u>SOURCE</u>	<u>Possible Points</u>	<u>Points Earned</u>
Exam 1	200	
Exam 2	200	
Exam 3	200	
Exam 4	200	
Lab #1 (Nutr.Studies)	10	
Lab #2 (Subjects in a study)	10	
Lab #3 (Biomolecures)	10	
Lab #4 (Sweeteners/fats).	10	
Lab #5 (Microscope, cell & Digestive)	10	
Lab #6 (Food Freq.Ques. Data Analysis)	10	
Lab #7 (Enzymes/digestion)	10	
Lab #8 (Postprand. Glucose)	10	
Lab #9 (Lipid Particles)	10	
Lab #10 (Blood Chol.)	10	
Lab #11 (Dietary Fiber)	10	
Lab #12 (Hypertension & Blood Pressure)	10	
Lab #13 (CVD Risk)	10	
Lab #14 (Energy)	10	
Lab #15 (Vitamin C)	10	
Lab #16 (Food micro.)	10	
Essays (2X25)	50 (total)	
3-Day Food Record	50	
PowerPoint	100	
ICA	variable	

TOTAL

*\*The points here may exceed 200 points as the semester goes on.*

NOTE: The above tabulation doesn't include the *Extra Credit*. Also, the lab points may vary somewhat from what is on here.

## ***Addendum A: Check-List*** for 3-Day Food Record Assignment

The following questions are to help you evaluate the diet in both of the above mentioned assignments. It is a checklist to help you get started thinking about the subject's nutritional status. You will need to use your knowledge gained from the supplemental course materials and textbook to fully address these.

NOTE: This is only a general checklist, and does not encompass the either assignment entirely.

1. Which nutrients were consumed at levels below 70% of the recommended amount ?
  - What nutrient deficiency could result ?
  - What would be the expected symptoms ?
  - Does the subject have any of these symptoms ?
  - Is this low dose a risk factor for some other health problem besides the deficiency symptoms ? For example, does a low intake of this nutrient put the person at risk for cardiovascular disease ?
2. Are any of the toxic vitamins (A, D, B6, or niacin) taken in doses that could be considered toxic ?
  - If so, elaborate on symptoms and consequences
  - Remember that it is nearly impossible to obtain toxic levels of any vitamin when the source is food. That usually will happen only if excess supplements are taken.
3. Are any minerals taken in high enough doses that they could pose a problem ?
  - A few minerals to keep an eye out for here are sodium, iron, and calcium.
  - Elaborate on those problems.
  - Is this excess dose a risk factor for some other health problem ? For example, a high intake of iron is associated with increased risk for various cancers.
4. Is the total fat, saturated fat, or cholesterol higher than it should be ?
  - If so, elaborate on the nutritional consequences.
5. Evaluate the subjects intake of omega-3 fatty acids and *trans*-fatty acids based on what you know about sources of these. You will have to do this analysis on your own since the dietary analysis software doesn't evaluate these.
6. How can the diet be modified to lessen the problems identified above ? In other words, what needs to be cut out of the diet , and what needs to be put into the diet to make it more "healthy" ?

I have read the terms of the syllabus for the following course:

**jdellarosa BIO-FSN 127 CRN 21305 or 21306 SP09**

**Syllabus: BIO/FSN 127 Human Nutrition and Biology**

**Spring 2009                      Tue/Th 10:00 to 12:40    Teacher: James De La Rosa, Ph.D**

Printed Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_