**Master Syllabus**

**Course: NUR 105 Human Nutrition**

**Cluster Requirement: 2B**

**Course Overview:**

This course develops the learner's knowledge of the major nutrients and their role in human function. It provides the foundation for understanding the relationship of nutrition to health, fitness, energy, weight management, longevity, and disease prevention. Nutritional strategies to promote health will be introduced. Identification of nutritional needs at each stage in the life cycle will be explored. Skills in written communication and computer data analysis will be enhanced by a dietary self-analysis.

This course is a hybrid of lecture classes and online classes. The lecture classes include time for self-assessment activities which lead to enhanced learning of nutrition principles. There are three exams, each covering three or four chapters. The online portion of this class includes approximately eight self-directed assessments. The assessments require independent reading, research or analysis of nutrition information found in the textbook (“Personal Nutrition”), online readings, websites, interactive online nutrition programs, and videos. After each assessment, the student is directed to take a timed, ten-question quiz which goes into the student’s grade book.

**Learning Outcomes:**

**Course-Specific Learning Outcomes:**

*By the end of the course, the student will be able to:*

* Identify the basic processes of energy production and metabolism.
* Discuss the major classifications and role of nutrients in the human body.
* Describe the role of nutrition in promoting health and preventing disease.
* Explore factors affecting fitness and weight management.
* Examine common nutrition related trends, myths, and issues.
* Describe the nutritional needs of individuals at each stage of the life cycle.
* Identify nutritional needs based on a nutritional assessment.
* Examine current research in human nutrition.

**University Studies Learning Outcomes (Cluster 2B):**

*By the end of the course, the student will be able to:*

* Analyze and evaluate the use of scientific information in the context of social, economic, environmental or political issues.
* Apply scientific theories and knowledge to real-world problems.
* Effectively communicate scientific information in writing

**NUR 105 Rationale Statement:**

This course provides an introduction to the study of Human Nutrition for both nursing majors and students requiring a science elective. The class was designed to help students understand the science behind nutrition principles, starting with a personal assessment of their own eating habits. Students compare their results to nutrition recommendations for health and longevity, food availability and food sustainability in the world around us. Following the University Studies guidelines, the intent of this application is to “Analyze and evaluate the use of scientific information in the context of social…(and) environmental issues.” (Cluster 2.B.1). Students are able to use a web-based formula to plug in health factors – e.g. cholesterol, blood pressure, smoking status, age – to find out the predicted risk of heart-related, potentially life-threatening problems, such as heart attacks and strokes. In contrast, students are able to learn about the dire consequences of poor nutrition around the world.

Relating more to another University Studies guideline, “Apply scientific theories and knowledge to real-world problems,” students learn about the effect nutrition choices have on each person and our population as a whole. For example, in impoverished parts of the world, we learn about the impact of extreme under-nutrition, or poverty, in some areas, and malnutrition, such as protein deficiencies or vitamin deficiencies, in other areas and cultures.

Furthermore, each chapter builds on a different nutrition principle, starting with the basic principles of sound nutrition, including sources and roles of all six nutrients, and ending with how those nutrients apply to each stage of the lifecycle. The importance of good nutrition during pregnancy, breastfeeding, early childhood, teen years, adulthood and aging are examined. The consequences of poor nutrition versus sound nutrition during various stages of the lifecycle are addressed, including the economic and health benefits of government-supported programs such as WIC. WIC is a program for “Women, Infants and Children” which provides free nutrition counseling and vouchers for healthy foods during these critical years. The program has dramatically reduced the rate of infant mortality in the United States, and continues to save the government three dollars for every dollar spent to support the program. This dramatically highlights the dire need of good nutrition during the reproductive and early years of life.

Regarding the third University Studies guideline, “Effectively communicate scientific information in writing,” students are able to apply their knowledge of nutrition and nutrients to their actual food intake by completing the computerized Diet Analysis program. After the reports are finalized, students must explain how and why their nutrient intakes can affect their future health. This written assignment is a pivotal point for most students who are able to make the connection between their diet choices and the potential for nutrition-related diseases.

**Examples of Texts and/or Assigned Readings:**

Personal Nutrition, 7th Edition, by Marie Boyle and Sara Long

Diet Analysis Plus Program, by Thomson/Wadsworth

Websites listed under next section (“Example Assignments”)

**Example Assignments:**

**Diet Analysis Program:**

This program involves inputting two days of all food consumed, using the program’s guidelines for type and portion size of each food item. After a two-day average is calculated, the student’s results are posted in a spreadsheet, with a nutrient analysis of every food listed. The student then has to interpret the results by analyzing their unhealthy excesses or deficiencies. Lastly, the student is required to write about and describe why and how they can improve their diet by increasing/decreasing the nutrient that can most drastically affect their health over time. The students must identify sources of that nutrient, how to incorporate the food into their diet, and how it is related to a particular health problem, identifying the relationship to family history of disease as well (see below for more fully fleshed out description).

University Learning Outcomes related to this assignment:

* **Apply scientific theories and knowledge to real-world problems** – Students observe that they may be at risk of osteoporosis, high blood pressure, anemia, high blood cholesterol, or a vitamin deficiency as a result of their diet analysis. Next they must use their understanding of the nutrients to identify how to increase or decrease certain foods to achieve a healthier nutrition status. They must identify the best sources of these nutrients using charts and tables of nutrients, and then describe how those nutrients could be added to their diet. Connections between nutrients may be addressed as well – e.g. adding a citrus juice like orange juice to a high-iron meal can enhance its absorption.
* **Effectively communicate scientific information in writing** – Students must use proper nutrition terminology to communicate the relationship between dietary changes and possible outcomes. Students only receive full credit if they list the highest sources of nutrients found in charts and tables, and their spreadsheets. Students lose points (5-10% of final project grade depending on terminology used) if they make direct statements such as “Lowering my sodium intake will reduce my blood pressure.” Rather, students must acknowledge the probability of affecting change by using the term “may” instead of “will” and by recognizing several other factors that play an important role in the development of high blood pressure, including: weight, family history, and “salt sensitivity.”

**Grading System for Diet Analysis Project:**

100 points are awarded for correct, completed project, including factors listed above

Breakdown:

**40** points for computerized Diet Analysis report:

20 points for two spreadsheets which include all vitamins, mineral, nutrients, and calories consumed over a two-day period

10 points for a Student Profile which calculates student’s need for each vitamin, mineral, nutrient and caloric intake

10 points for an accurate 2-day average of vitamins, minerals, nutrients, and caloric intake

**60** points for assessment of Diet Analysis report:

20 points for determining which nutrients are too high, or over 100% of the RDA

10 points for determining which nutrients are too low, or less than 90% of the RDA

10 points for listing three nutrients that are considered excellent sources of a nutrient that were identified as being too low in the diet, per two-day analysis, using charts and tables

10 points for listing three nutrients that are considered concentrated sources of a nutrient that were identified as being too high in the diet, per spreadsheet review, using spreadsheet values

10 points each for explaining in proper nutrition/medical terms the potential impact that improving one of their nutrients can have on their health, as related to a reduced risk of disease or improved health

A total score of 100 points translates to a score of 100% on the project. Lower grades are translated to a percentage of 100. A score of 100 equals ten points towards a student’s final grade in the class.

**Online Assessments**:

*There are approximately nine online assessments throughout the semester. These assessments aim to increase the student’s awareness of the medical and social impact of nutrition on individuals, and what we can do to increase our health status. Online “classes” take the place of live lectures in this hybrid class.*

Calculation of Heart Disease Risk:

Students are directed to a website called, “HealthyFridge.org” where they can enter the risk factors for two different hypothetical people. Students are able to see how one’s risk of heart disease can be dramatically changed when the following factors are altered: blood pressure, cholesterol, age, smoking status, and whether or not a person is on blood pressure medication. The results indicate a person’s “risk score” for developing heart disease. This assessment highlights the impact lifestyle choices have on our health. Students take a ten-question, online assessment to test their knowledge on this subject.

Evaluation of Weight Loss Medications:

Students are directed to a website called “Medline Plus” where they are able to read about and evaluate the efficacy and, more importantly, the safety of weight loss drugs. This highlights the chemical effect of medications on the part of the brain that affects satiety. The issues of drug safety include discussions on the risk to organs and/or the risk to one’s life. For example, students learn about a drug called Xenical which can cause liver damage. We contrast that side effect with a drug called Ephedra which was banned by the FDA due to related deaths. Students take a ten-question, online assessment to test their knowledge on this subject.

Social Movement Regarding Health:

Students are directed to a website called “Let’s Move” which addresses the problem of childhood obesity in the United States. First Lady Michelle Obama is the spokesperson behind this campaign which aims to increase activity and consumption of fresh fruits and vegetables, while decreasing sedentary living and reliance on fast food and junk food. Students are tested on such facts as the medical impact of childhood obesity, which questions addressing such issues as, “One out of three children born in 2000 or later will get which disease at some point in their lives?” The answer is “Diabetes” which opens up a discussion on the increasingly early onset of Type 2 Diabetes as it relates to increased childhood obesity in the U.S., and the impact of excess weight on insulin sensitivity. Students take a ten-question, online assessment to test their knowledge on this subject.

University Learning Outcomes related to these assessments:

* **Analyze and evaluate the use of scientific information in the context of social, economic, environmental or political issues –** The rate of childhood obesity has become epidemic, so much so that the “Let’s Move” campaign is the First Lady’s top platform for national change. Government resources are being allocated to improve nutrition among U.S. children. Students in NUR 105 are able to learn how social and governmental movements are made relating to nutrition crises such as childhood obesity (“Let’s Move”), and malnutrition among impoverished pregnant women, babies and children (WIC program).
* **Apply scientific theories and knowledge to real-world problems –** When evaluating weight loss medications, weight loss practices, herbal “remedies” and vitamin supplement overload, students learn about how the pursuit of health can be detrimental if scientific data and research are not carefully conducted and evaluated. For example, since Ephedra is an herb, and herbs are not regulated by the FDA, its safety was not carefully tested or evaluated. The resulting deaths that occurred, which triggered the FDA to ban Ephedra, are a study in the value of scientific testing and analysis.

**Grading System for Online Assessments:**

Students are given two hours to research online information, take personal assessments, or analyze data in the charts and tables in their textbook, and then answer ten questions. The questions are all multiple choice or true/false format. Each online assessment contains 10 questions, and each question is worth ten points. Their grade is automatically entered into their grade books through MyCourses. The lowest grade is dropped at the end of the semester, and the remaining grades are averaged. A score of 100 is worth 10 points toward the student’s final grade. Lower grades are used as a fractional percentage of 10 points. (See below for examples of quizzes

**Grading System for the Class:**

Final Grades are based on the following:

* Three exams (includes Exam #3/”Final” exam) **25** points each (Equals 75% of grade)
* Diet Analysis Project **10** points (Total; for both parts)
* Online Assignments/Quizzes **10** points
* Attendance **5** points

**Sample Course Outline:**

**TOPIC CHAPTER**

Week #1:

The Basics of Understanding Nutrition 1

The Pursuit of a Healthy Diet 2

Week #2

Anatomy for Nutrition’s Sake 3

The Carbohydrates: Sugar, Starch, & Fiber / Diabetes 4

Week #3

**ONLINE CLASS** – LOOK FOR REQUIRED ASSIGNMENT/QUIZ

**Exam #1 – Chapters 1-4**

Week #4

**ONLINE CLASS** – LOOK FOR REQUIRED ASSIGNMENT/QUIZ

The Lipids: Fats and Oils / Heart Disease5

Week #5

**ONLINE CLASS** – LOOK FOR REQUIRED ASSIGNMENT/QUIZ

The Lipids: Fats and Oils / Heart Disease 5

Week #6

The Proteins and Amino Acids / Renal Diet 6

Vitamins, Minerals, and Water 7

Week #7

**ONLINE CLASS** – LOOK FOR REQUIRED ASSIGNMENT/QUIZ

Vitamins, Minerals, and Water 7

Week #8

**ONLINE CLASS** – LOOK FOR REQUIRED ASSIGNMENT/QUIZ

The Impact of Fluids and Beverages on Nutritional Health 8

Week #9

**ONLINE CLASS** – LOOK FOR REQUIRED ASSIGNMENT/QUIZ

**Exam #2 – Chapter 5-8**

Week #10

Weight Management / Eating Disorders 9

**ONLINE CLASS** – LOOK FOR REQUIRED ASSIGNMENT/QUIZ

Diet Analysis project directions and assignment are explained and distributed

Week #11

Weight Management / Eating Disorders 9

**ONLINE CLASS** – LOOK FOR REQUIRED ASSIGNMENT/QUIZ

Week #12

**Diet Analysis project due at beginning of class**;

Nutrition & Fitness / Sports Nutrition 10

**ONLINE CLASS** – LOOK FOR REQUIRED ASSIGNMENT/QUIZ

Week #13

The Life Cycle: Conception through the Later Years 11

Week #14

The Life Cycle: Conception through the Later Years

**ONLINE CLASS** – LOOK FOR REQUIRED ASSIGNMENT/QUIZ

Week #15

The Life Cycle: Conception through the Later Years 11

Review for Exam #3/Final

**Exam #3/Final (NOT Cumulative) – Chapters 9-11**

**\*Breaks for vacation are not noted. The amount of online quizzes varies depending on the number of vacation days during the semester.**

**Examples of exam questions, and their relationship to University Studies Learning Outcomes:**

1. Which statement is **false**?
2. Older people tend to feel less thirsty and drink less than they should so they should be reminded to drink fluids
3. For older adults, age-related weight gain is inevitable because BMR always drops regardless of activity level or exercise
4. Constipation is more common among the elderly
5. Problems with teeth and dentures are one of the common reasons why elderly people have problems eating.

Answer: a

1. Athletes who “hit the “wall” run out of stored:
2. Fat
3. Protein/Amino acids
4. Carbohydrates/Glucose
5. Minerals including potassium

Answer: c

1. Too much milk in a child’s diet can lean to an iron-deficiency. Milk should be limited to:
2. <4 cups per day
3. <5 cups per day
4. <6 cups per day
5. <7 cups per day

Answer: a

1. Which of the following statements about WIC is **false?**
2. Healthy foods (or vouchers for foods) are given to participants
3. Only low-income pregnant women, mothers and their young children can receive benefits
4. Nutrition education is provided
5. More money is spent than saved in medical costs because of WIC but our government continues to provide the service.

Answer: d

**5.** True or False: (a = True; b = False)

Older people who want to eat at federally funded group meal sites do not have to qualify as low-income to be able to eat for free.

Answer: a

University Learning Outcomes related to these exam questions:

* **Analyze and evaluate the use of scientific information in the context of social, economic, environmental or political issues**

*Questions 4 and 5 address a student’s ability to evaluate nutrition principles and problems as they relate to nutrition-related policies in the U.S.*

* **Apply scientific theories and knowledge to real-world problems**

*Questions 1, 2, and 3 ask students to apply their scientific knowledge to real-world nutrition problems and issues.*

**Diet Analysis Project – Part 1**

**NUR 105**

**How to prepare for using the program:**

Write down everything you eat and drink (including specific amounts) for two days.

**How to use the program:**

1. **Create your personal profile**

Fill in your personal data – e.g. your name, weight, height, activity level, age, etc*.*

Regarding **activity level**, consult the instructions for which activity level you should choose.

After entering your personal data, enter your student information (student I.D. is not required)

Click “Done”

**2.  Enter your foods**

Select “Track Diet”

Choose a date and enter your foods for day one.  Choose a second date and enter foods for day two.

**3.  Print Reports**

Profile:

Go to “View Reports” (**DO NOT** choose “Print Reports”)

Choose “Profile DRI Goals” and “print”

Print the profile (click on the “file” button in the upper left-hand corner to find the print option)

After printing each report, do not click on the close (“x”) button, choose the minimize button instead

Spreadsheets:

Choose “Intake Spreadsheet”

Enter the date for the first spreadsheet (click on the correct date on the calendar until it turns red), save it, and print it out

Enter the date for the second spreadsheet, click on “calculate,” save it, and print it out

Two-Day Average:

Choose “Intake vs. Goals”

**Click on the correct two dates** to average and click “calculate.”

Print it out (this will give you a bar graph of nutrients)

**4.  Staple these together in order:**

Profile, Two-Day Average, day 1 and day 2 spreadsheets

**PLEASE DO NOT GIVE ME MORE PAGES THAN THOSE LISTED ABOVE.**

**NOTES ABOUT YOUR PROJECT:**

\* You may show me your results before moving onto the analysis portion of this project.  I can give you feedback so you can correct any foods that were entered incorrectly.

\* You will not be graded on your diet.

**Important Tips for Entering Foods:**

         If you choose a bagel (and it is not a small Lender’s bagel), write “Dunkin’ Donuts bagel” when you search for the bagel.  Most bagels are equal to DD size bagels.

         If you can’t find what you are looking for in your search, try to shorten what you write.  For example, instead of “tuna fish,” enter “tuna.”

         Try a different word if you can’t find what you are looking for.  For example, write “lettuce” instead of salad.

         If you have the nutrition label of a food you are searching, and you are not sure which option to choose, click on the “i” to the left of the food choices.  That will give you the nutrition information of each food so you can compare the options to your label and choose the best match.

         To determine the size of any meat, chicken or fish you eat, compare it to a deck of cards,

which is equal to 3 ounces (oz).  A cup of pasta, rice or anything else is the amount that would fit in two cupped hands.  A half-cup would fit in one cupped hand.

         If you have a standard meal, such as spaghetti & meatballs, enter “spaghetti” and scroll through the choices until you get to the specific type you had – e.g. canned, prepared, meat sauce, etc.  If you make the dish yourself and/or it is not a standard recipe, enter one ingredient at a time.  This is recommended if the type of meat is different than the standard ground beef used (e.g. ground turkey, lower fat beef, or less meat than the usual recipe).

         Enter the ingredients of soup separately unless it is a standard homemade or brand-name soup (e.g. split pea soup, chicken soup, etc.; you can also enter brand names like Campbell’s).  Some homemade soups may be on the list so check first before entering all of the ingredients separately.

         One “tablespoon” is a measuring tablespoon, not a serving spoon.

         DO NOT choose the powdered or concentrated version of a drink such as lemonade – look for the liquid version.

         DO NOT enter dry pasta.  Look for the cooked version.

         You may see letters next to certain food items.  These are abbreviations for fast food chains:    BK = Burger King, JB = Jack in the Box, DQ = Dairy Queen

**Six Sample Questions from the Online Assessments:**

Question #1:

Go to page 254 in your textbook. The chart shows you what types of lifestyle habits may increase or decrease the risk of cancer. How many total types of cancer have an "Increases risk convincingly" connection with obesity?

1. 3
2. 4
3. 5
4. 6

Correct answer: d

Question #2:

Again, on page 254, according to the chart what lifestyle habits have an "Increases risk convincingly" connection to breast cancer?

1. Red meats and smoking
2. Alcohol and smoking
3. Alcohol and obesity
4. Total and saturated animal fats

Correct answer: c

Question #3:

Again, on page 254, look carefully at the chart. What are the possible health benefits of eating fruits and vegetables that are high in beta-carotene?

1. May reduce the risk of heart disease and cancer
2. May specifically reduce breast cancer risk
3. May help reduce the risk of many cancers and strengthen the immune system
4. May reduce blood clotting risk and therefore reduce the risk of strokes and heart attacks

Correct answer: c

Question #4:

Go to www.healthyfridge.org and click on "Heart of the Matter." Then click on "Calculate Your Risk for Heart Disease." Enter the following information (write this down): 50 years old, Male, Total Cholesterol = 300, HDL Cholesterol = 30, Smoker (Yes), Systolic Blood Pressure = 100, and NOT on any medications to treat high blood pressure. Then determine the Risk Score. Next, revise the information and change Total Cholesterol to 200, and change to Not a Smoker (No). Compare the first Risk Score to the second one and write both Risk Scores down.

After completing the "Calculate Your Risk for Heart Disease" directions, what were the two risk factors?

1. 40% for the first risk factor; 21% for the second
2. 32% for the first risk factor; 25% for the second
3. 26% for the first risk factor; 5% for the second
4. 16% for the first risk factor; 4% for the second

Correct answer: c

Question #5:

Which of the following fats has the lowest percentage of saturated fat? See the chart on p. 142

1. Sesame oil
2. Palm oil
3. Olive oil
4. Canola oil

Correct answer: d

Question #6:

Look through the section on eating disorders in the back of Chapter 9. Look for the chart comparing the different types of eating disorders. Is substance abuse common among people who have anorexia (called Anorexia Nervosa) or bulimia (called Bulimia Nervosa)?

1. Anorexia
2. Bulimia

Correct answer: b

**Diet Analysis Project – Part 1**

**NUR 105**

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**How to use the program:**

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