

 <p>POINT LOMA NAZARENE UNIVERSITY</p>	<p>Department of Kinesiology and Health Sciences</p> <p>NUT 3065 - Advanced Nutrition</p> <p>Number of Units: 3</p>
<p>Fall 2025</p>	

<p>Meeting days: Mon/Wed</p>	<p>Instructor title and name: Prof Cindy Swann, MS, RD, CDCES</p>
<p>Meeting times: 8:25-9:40 am</p>	<p>Phone: 619-849-2351</p>
<p>Meeting location: Evans 122</p>	<p>E-mail: cindyswann@pointloma.edu</p>
<p>Final Exam: Mon. 12/15 7:30-10:00 am</p>	<p>Office location and hours: Evans 134 Mon/ Wed 9:45-10:45 and 12:00-12:25; Tues/Thurs 9-9:45 am, 1:00-1:25 pm or by appt.</p>

[Download Course Syllabus Here](#)

PLNU Mission:
To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service becomes an expression of faith. Being of Wesleyan heritage, we aspire to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

GOALS AND OUTCOMES:

Course Description:

Theories are integrated from physiology, biochemistry and nutrition to provide an in-depth study of nutrients and their role in human metabolism. Current research on human metabolic processes is analyzed. Laboratory applications. Three (3) semester unit credits.

Dietetic Learning Outcomes:

1. Demonstrate content knowledge of food and nutrition as well as concepts and theories of nutrition across a broad range including: lifecycle stages, cellular nutrition, disease prevention and medical therapy; food and food systems; development, modification, and evaluation of recipes, menus and food products.
2. Identify and assess scientific literature to evaluate current evidence-based research related to dietetic topics.
3. Evaluate the effects of societal, cultural, ethical and financial dynamics upon diet trends, dietary choices, and food preparation methods among families and societies.

NUT 3065 Course Student Learning Outcomes:

1. Define in-depth nutrient roles.
2. Describe how macronutrients are digested and absorbed.
3. Outline major biochemical pathways.
4. Explain specific reactions for vitamins and minerals as cofactors.
5. Draw the nutrient chemical structures.
6. Distinguish the relative importance of various foods as sources of nutrients.
7. Examine recent scientific literature in refereed journals.
8. Analyze reports concerning research findings on various nutrients.
9. Interpret and report data in a research paper.

AND's KRDN Didactic Course Core Knowledge for the RDN in DPD Programs based on 2022 Standards:

KRDN 1.1: Demonstrate how to locate, interpret, evaluate and use professional literature to make ethical, evidence-based practice decisions.

KRDN 1.2: Select and use appropriate current information technologies to locate and apply evidence- based guidelines and protocols.

KRDN 1.3: Apply critical thinking skills.

KRDN 2.1: Demonstrate effective and professional oral and written communication and documentation. KRDN 2.9: Defend a position on issues impacting the nutrition and dietetics profession.

KRDN 3.4: Practice routine health screening assessments, including measuring blood pressure and conducting waived point-of-care laboratory testing (such as glucose or cholesterol).

COURSE CREDIT HOUR INFORMATION

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit hour policy for a 3 unit class delivered over 17 weeks. Specific details about how the class meets the credit hour requirement can be provided upon request.

ESSENTIAL INFORMATION:

Students are responsible for having the required course textbooks prior to the first day of class.

All supplemental materials posted on this course site (including articles, book excerpts, or other documents) are provided for your personal academic use. These materials may be protected by copyright law and should not be duplicated or distributed without permission of the copyright owner

REQUIRED TEXT AND RECOMMENDED STUDY RESOURCES

Gropper, S.S., Smith, J.L. and Groff J.L. Advanced Nutrition and Human Metabolism, 8th ed. Cengage Learning, 2022.

Lecture Notes:

Available on Canvas. Print out and bring to lecture class or follow along on personal computers.

COURSE REQUIREMENTS AND STANDARDS:

Course Grading Criteria:

13 Chapter quizzes @ varying pts.	~150 (LO# 1)
4 Term Exams @ 100 pts. each	400 (LO# 1)
Written Research Study	100 (LO# 1,2,3)
1 Oral Presentation @ 50 pts. each	50 (LO# 1,2,3)
3 Laboratory Reports @ 15 pts. each	45 (LO# 1)
Diet and Activity Study	100 (LO# 1,2,3)
Blood Glucose Journal	30 (LO# 1)

Debate	25 (LO# 1,2,3)
Final Exam	100 (LO# 1)
Review Questions/Discussions on Canvas POINTS	<u>varying points</u> TOTAL ~ 1000 points

Attention NUT students: You are required to turn in a portfolio project as a senior. Keep any and all graded work you want to showcase.

Grade Distribution:

A	B	C	D	F
A 93-100	B+ 87-89	C+ 77-79	D+ 67-69	F Less than 59
A- 90-92	B 83-86	C 73-76	D 63-66	
	B- 80-82	C- 70-72	D- 60-62	

Projects:

Diet Activity Report

See Canvas for full directions on this project. This project involves recording your dietary intake, and every minute of activity for three consecutive days. You will analyze your dietary intake by hand and

compare it to three sets of recommendations: the DRIs, MyPlate guidelines, and US Dietary Guidelines. You will calculate your 24-hour activities using the appropriate METs. A summary report will be written for each method used, and then energy intake vs output will be compared. Lastly, a conclusion summarizing goals on how your daily diet and activities could be adapted to better meet the guidelines will be crafted.

Laboratory Experiment Report Format

A written report will be required to turn in following each finger stick blood experiment performed. The report will consist of the following four parts:

1. Objective: what did you measure? What was the point of the experiment? (2 pts)
2. Principle: what did the machine measure and how did it work? (3 pts)
3. Procedure: Step by step directions in how to conduct the test. (5 pts)

4. Final Data/Conclusion:: What results did you obtain? What do the results mean to your health? What is the normal range? Are they in the normal range or not? If not, what could the results indicate? Remember to provide references for your "facts". (5 pts)

I plan to do three (3) experiments during class. A lab report will be due the next class period after the lab. Each report is worth 15 pts.

Debate

Topic = Low Carb/Keto/Atkins diets. Research the pros and cons of low carb diets. This debate will be a "tag" format. When you are called on, you must state a fact about low carb diets that is the opposite side of the argument than your classmate. For instance, if the student before you stated a "con", you must summarize their statement, then state a "pro".

Oral Presentations

Each student will choose one vitamin to teach to the class. A 10 minute presentation will be prepared and presented that will include the nutrient's functions, active form, food sources, RDA values, deficiency/toxicity symptoms, and method of assessment. Additionally, a journal article on this nutrient will be presented. A variety of presentation methods may be utilized, but should include a visual presentation, as well as a handout to be used as a study guide.

Blood Glucose Monitoring

Each student will learn how to use a blood glucose meter and test to see how various meals affect blood glucose levels. Choose day(s) when you are able to test your blood glucose every 30 minutes for 2 hours. Test your blood glucose before you eat a meal. Eat your meal. Begin testing your blood glucose levels every 30 minutes, starting from your first bite of eating. Test for at least 2 hours. Graph your results. Do at least two (2) different scenarios.

Choose a variety of meals. Some examples are a high protein/fat meal with little carbs (egg/meat with toast/ fruit) or a high simple carb meal (low fiber cereal, nonfat milk, juice) or a balanced meal with high fiber (oatmeal with egg, fruit) or a sugar free meal (sugar free gum, or diet drink). You might also want to see how exercise during your 2 hour testing period might change your readings.

Along with your graphs of results, write 1-2 paragraphs about your findings. How did you feel at the 2 hour mark? Did you have trouble poking your finger? Did you notice a difference between the different meals?

Research Report Guidelines

The purpose of this assignment is to conduct a research project in its entirety. Each student will be responsible for collecting data and writing their own paper. The project will consist of several parts.

1. In class, we will practice finger prick blood tests resulting in a lab report. For this project, you will choose one blood parameter to test using a finger stick monitor for your research report (ex. cholesterol, glucose, iron, vitamin D)
2. We will conduct a “pre-diet” test in class.
3. Change your diet in an attempt to create a change in this blood value. Write out how your diet will change and give a sample. For example, add an egg to your diet every day to see if your blood cholesterol level changes; or eliminate red meat in your diet for two weeks to see if it affects your iron status. Follow your diet for at least two weeks. Keep a journal of the diet change you are attempting.
4. After at least two weeks, we will conduct a “post-diet” test in class.
5. You now have your data. Write the research paper. A research report consists of 6 parts:

A. Introduction: Students decide their own hypothesis. For instance, you may want to report on the assumption that increasing your saturated fat levels will raise your blood cholesterol values. The introduction generally has a few paragraphs describing the basic components of the nutrients. For example, what are saturated fats and where are they found, how do they affect blood cholesterol, etc. Next, conduct a literature review and outline what studies have been done on this topic in the past, summarizing what has been found. A literature review/introduction section should be ~3-5 pages (double spaced). Finish the section by stating the hypothesis of this research project.

B. Methods and Materials: in this section, report exactly how the research was conducted and the materials used. The methods section should be so clear, and complete, that I could repeat your exact study. Examples are a description of the subject(s), the environment, the diet followed, how the blood was tested, the laboratory equipment used, etc. Think of this section as a recipe, **except the text is written in paragraph form** (do not list materials).

C. Results: generally, this is a summary of the data shown in concise graphs or tables with verbal text describing in paragraph form the contents of each graph or table. However, your results will be final data given by the machine. In this section, just report the facts. Write in the third person, past tense, with no opinion given, or discussion made. This will be a very brief section since you are just reporting the pre and post blood values, and the statistics of how compliant you were with your diet change.

D. Discussion: this section should complete a full circle from your hypothesis and introduction material. Here you will compare or contrast your results to the literature reported, evaluate your procedures and techniques used, and summarize your findings. Finish with a brief conclusion.

E. Reference page: Follow the *Journal of Nutrition* format for referencing all articles used in your paper. Within the body of the paper, you may use the number system, or author/year system when referencing.

F. Appendices: all raw data used, such as diet log, any raw data from the lab experiments, etc.

DAILY SCHEDULE:

Date	Lecture Topic	<u>Chp Readings</u>	Assignment Due
Week 1, Wed. 9/03	Course Intro; Cell Review	1	
Week 2, Mon, 9/08	Digestive System (Start 3-day diet record on Thurs or Sun)	2	Quiz 1/ Introduce Self
Wed, 9/10	Energy/Start Carbohydrates	2,3	Quiz 2/ Checking-in
Week 3 Mon 9/15	Carbohydrates	3	Quiz 3
Wed, 9/17	Finish Carbs / Glucose Lab	2,3	Glycolysis overview
Week 4 Mon, 9/22	Fiber	4	Quiz 4
Wed, 9/24	Exam 1		
Week 5 Mon, 9/29	Lipids	5	Glucose lab report
Wed, 10/1	Lipids	5	Quiz 5

Week 6 Mon, 10/06	Cholesterol lab		
Wed, 10/08	Lipids / Protein	6	Chol lab report
Week 7 Mon, 10/13	Protein	6	Quiz 6
Wed, 10/15	Protein/Body Comp	6	
Week 8 Mon, 10/20	Iron or Vitamin D (Test Blood- (Start diet change)		Diet/Activity report
Wed, 10/22	Body Comp/Review/ Energy		Iron or Vitamin D lab report
Week 9 Mon, 10/27	EXAM 2		
Wed, 10/29	Energy / Metabolism	7	Quiz 7 & 8
Week 10 Mon, 11/3	Debate / Metabolism	7	
Wed, 11/05	Oral Reports on Vitamins	9	Quiz 9
Week 11 Mon, 11/10	Oral Reports on Vitamins	10	Quiz 10

Wed, 11/12	Test Blood / Finish oral reports		
Week 12 Mon, 11/17	Finish Vitamins/Review (Supplements?)		
Wed, 11/19	Macrominerals	11	Quiz 11
Week 13 Mon, 11/24	Exam 3		
Wed, 11/26	Holiday		
Week 14 Mon, 12/01	Fluid & Electrolyte Balance	14	Quiz 12/ Blood Glucose Journal
Wed, 12/03	Microminerals	12	Quiz 13
Week 15 Mon, 12/08	Exam 4		
Wed, 12/10	Final Review		Research Paper due
Week 16 Mon, 12/15	Final Exam		7:30-10:00 am

POLICIES AND PROCEDURES:

Department Policies And Procedures:

Note: Failure to abide by the rules will negatively affect your grade.

1. **CLASS ATTENDANCE:** Class will begin promptly. *Class attendance is essential for success in this class.* Students are expected to work efficiently and respectfully
2. **ELECTRONICS IN CLASSROOM:** IPADS and laptops are fine for viewing and taking notes, however, there is much research proving writing notes BY HAND creates synthesis, thereby increasing your learning and promoting long-term retention. I highly recommend you try it!
3. **EMAIL:** Check PLNU email regularly for any new postings or communications from the instructor.
4. **LATE POLICY:** Due dates are enforced rigorously. 25% deducted for each day late. Please reach out to me if you have concerns with getting your assignments completed; communication helps your professors know what you need.
5. **EXAMS:** No makeup exams or quizzes given. Emergencies processed on an individual basis.
6. **EMERGENCIES:** Everyone has them. Be responsible, communicate promptly and privately, tell the truth, don't take advantage of the instructor's goodwill. Each will be evaluated on its merits.

Documentation may be requested.

Section 1

Course Outline

NUT 3065 Advanced Nutrition

- I. Cell Review
 - A. Typical Cell Components
 - B. Cellular Proteins
- II. Digestive System
 - A. Structural Overview
 - B. Coordination and Regulation
 - C. The Process of Digestion
- III. Energy Transformation
 - A. High Energy Phosphate Bonds
 - B. ATP Formation
 - C. Electron Transport Chain Section 2
- I. Carbohydrates
 - A. Structures
 - B. Digestion

- C. Absorption, Transport, Distribution
- D. Integrated Metabolism
- E. Regulation of Metabolism

II. Dietary Fiber

- A. Definition
- B. Components
- C. Physiological and Metabolic Effects
- D. Recommended Intake

III. Lipids

- A. Structure and Function
- B. Digestion, Absorption, Transport
- C. Lipoproteins and Cardiovascular Risk
- D. Integrated Metabolism

IV. Proteins

- A. Functions
- B. Structure and Organization
- C. Amino Acid Classification
- D. Sources
- E. Digestion, Absorption
- F. Amino Acid Metabolism
- G. Organ-Specific Metabolism
- H. Protein Turnover
- I. Protein Quality/Intake

V. Interrelationship of CHO, Lipid and Protein Metabolism

- A. Central Role of Liver
- B. Feed-Fast Cycle
- C. System Integration and Homeostasis Section 3

I. Water-Soluble Vitamins (C and all B)

- A. Sources
- B. Digestion, Absorption, Transport, Storage
- C. Functions and Mechanisms of Action
- D. Interactions with other Nutrients
- E. Metabolism and Excretion
- F. Recommended Amounts
- G. Deficiency and Toxicity
- H. Assessment of Nutriture

II. Fat-Soluble Vitamins (A,D,E,K)

- A. Sources

- B. Digestion, Abs'n, Transport, Storage
- C. Functions and Mechanisms of Action
- D. Interactions with other Nutrients
- E. Metabolism and Excretion
- F. Recommended Amounts
- G. Deficiency and Toxicity
- H. Assessment of Nutriture

III. Macrominerals

- A. Sources
- B. Digestion, Abs'n, Transport, Storage
- C. Functions and Mechanisms of Action
- D. Interactions with other Nutrients
- E. Excretion
- F. Recommended Amounts
- G. Deficiency and Toxicity
- H. Assessment of Nutriture

IV. Microminerals

- A. Sources
- B. Digestion, Abs'n, Transport, Storage
- C. Functions and Mechanisms of Action
- D. Interactions with other Nutrients
- E. Excretion
- F. Recommended Amounts
- G. Deficiency and Toxicity
- H. Assessment of Nutriture

Section 4

I. Body Fluid and Electrolyte Balance

- A. Water Distribution in Body
- B. Maintenance of Fluid Balance
- C. Maintenance of Electrolyte Balance
- D. Acid-Base Balance and Buffers
- E. Respiratory Regulation of pH
- F. Renal Regulation of pH

SPIRITUAL CARE

PLNU strives to be a place where students grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith.

If you have questions, a desire to meet with the chaplain, or if you have prayer requests, you can contact the Office of Student Life and Formation.

STATE AUTHORIZATION

State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on [State Authorization](#) to view which states allow distance education outside of California.

INCOMPLETES AND LATE ASSIGNMENTS

All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas. Incompletes will only be assigned in extremely unusual circumstances.

FINAL EXAMINATION POLICY

Successful completion of this class requires taking the final examination on its scheduled day. The final examination schedule is posted on the [Class Schedules](#) site. If you find yourself scheduled for three (3) or more final examinations on the same day, you are authorized to contact each professor to arrange a different time for one of those exams. However, unless you have three (3) or more exams on the same day, no requests for alternative final examinations will be granted.

PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.]

PLNU Recording Notification®

In order to enhance the learning experience, please be advised that this course may be recorded by the professor for educational purposes, and access to these recordings will be limited to enrolled students and authorized personnel.

Note that all recordings are subject to copyright protection. Any unauthorized distribution or publication of these recordings without written approval from the University (refer to the Dean) is strictly prohibited.

PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. For all student appeals, faculty and students should follow the procedures outlined in the University Catalog. See [Academic Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities in accordance with the Americans with Disabilities Act (ADA). Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center (EAC@pointloma.edu or 619-849-2533). Once a student's eligibility for an accommodation has been determined, the EAC will work with the student to create an Accommodation Plan (AP) that outlines allowed accommodations. Professors are able to view a student's approved accommodations through Accommodate.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course. Accommodations are not retroactive so clarifying with the professor at the outset is one of the best ways to promote positive academic outcomes.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC. Students cannot assume that because they had accommodations in the past, their eligibility at PLNU is automatic. All determinations at PLNU must go through the EAC process. This is to protect the privacy of students with disabilities who may not want to disclose this information and are not asking for any accommodations.

LANGUAGE AND BELONGING

Point Loma Nazarene University faculty are committed to helping create a safe and hospitable learning environment for all students. As Christian scholars we are keenly aware of the power of language and believe in treating others with dignity. As such, it is important that our language be equitable, inclusive, and prejudice free. Inclusive/Bias-free language is the standard outlined by all major academic style guides, including MLA, APA, and Chicago, and it is the expected norm in university-level work. Good writing and speaking do not use unsubstantiated or irrelevant generalizations about personal qualities such as age, disability, economic class, ethnicity, marital status, parentage, political or religious beliefs, race, gender, sex, or sexual orientation. Inclusive language also avoids using stereotypes or terminology that demeans persons or groups based on age, disability, class, ethnicity, gender, race, language, or national origin.

Respectful use of language is particularly important when referring to those outside of the religious and lifestyle commitments of those in the PLNU community. By working toward precision and clarity of language, we mark ourselves as serious and respectful scholars, and we model the Christ-like quality of hospitality.

If you (or someone you know) have experienced other forms of discrimination, you can find more information on reporting and resources at www.pointloma.edu/nondiscrimination.

SEXUAL MISCONDUCT AND DISCRIMINATION

In support of a safe learning environment, if you (or someone you know) have experienced any form of sexual discrimination or misconduct, including sexual assault, dating or domestic violence, or stalking, know that accommodations and resources are available through the Title IX Office at pointloma.edu/Title-IX. Please be aware that under Title IX of the Education Amendments of 1972, faculty and staff are required to disclose information about such misconduct to the Title IX Office.

If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact Counseling Services at counselingservices@pointloma.edu or find a list of campus pastors at pointloma.edu/title-ix.

If you (or someone you know) have experienced other forms of discrimination or bias, you can find more information on reporting and resources at www.pointloma.edu/bias

PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions, the faculty member will issue a written warning of de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university withdrawal date or, after that date, receive an “F” grade.

ARTIFICIAL INTELLIGENCE (AI) POLICY

You are allowed to use Artificial Intelligence (AI) tools (e.g., ChatGPT, Gemini Pro 1.5, GrammarlyGo, Perplexity, etc) to generate ideas, but you are not allowed to use AI tools to generate content (text, video, audio, images) that will end up in any work submitted to be graded for this course. If you have any doubts about using AI, please gain permission from the instructor.

LOMABOOKS INSTRUCTIONS FOR STUDENTS

*This course is part of our course material delivery program, **LomaBooks**. The bookstore will provide each student with a convenient package containing all required physical materials; all digitally delivered materials will be integrated into Canvas.*

You should have received an email from the bookstore confirming the list of materials that will be provided for each of your courses and asking you to select how you would like to receive any printed components (in-store pick up or home delivery). If you have not done so already, please confirm your fulfillment preference so the bookstore can prepare your materials.

*For more information about **LomaBooks**, please go: [HERE](#)*