

# NUIP 6450-90: Spring 2019

## NUTRITION BIOCHEMISTRY

### INSTRUCTOR INFORMATION

***Anandh Babu Pon Velayutham***

**801-581-8376**

**[anandh.velayutham@utah.edu](mailto:anandh.velayutham@utah.edu) (<mailto:anandh.velayutham@utah.edu>)**

**[Department of Nutrition and Integrative Physiology](https://health.utah.edu/nutrition-integrative-physiology/) [\(https://health.utah.edu/nutrition-integrative-physiology/\)](https://health.utah.edu/nutrition-integrative-physiology/)**

**Office: HPER-N 224C**

### TEACHING ASSISTANT INFORMATION

### STUDENT LEARNING OUTCOMES

NUTR 6450: Nutrition Biochemistry Course is designed to give students a thorough working knowledge of cellular biochemistry as it pertains to human physiology, nutrition and metabolism with special emphasis on metabolic interrelationships, hormonal control of biochemical signaling pathways, and disorders of metabolism. Background material will be supplemented and reinforced through study of relevant systems and disease states.

#### **Course Objectives**

1. Understand key elements and concepts relevant to biochemistry including metabolic pathways, cellular

control mechanisms and signaling pathways.

2. Translate metabolic concepts of macronutrient metabolism to specific problems and disease states.
3. Critically appraise scientific biochemical literature in order to perform evidence-based practice.

## PREREQUISITES

Biochemistry 3510

## REQUIRED MATERIAL

You are not required to purchase a text book. Most readings will come from peer-reviewed literature and links will be provided for you. General use references include, Harper's Biochemistry, Harper's illustrated biochemistry, Biochemistry (Berg et al.) – available on closed reserve in Eccles Library.

## LEARNING ASSESSMENTS

Final grade will be calculated based on Assignments (200 Points), Quizzes (100 Points), and Exams (200 Points).

The final average will be converted to a letter grade according the Grading Scheme.

### POINT BREAKDOWN FOR ASSIGNMENTS AND EXAMS

Assignment 1: Article critique (Signaling mechanism)	50 points
Assignment 2: Teaching presentation (Carbohydrate metabolism)	50 points
Assignment 3: Article critique (Lipid metabolism)	50 points
Assignment 4: Teaching presentation (Biochemistry in action)	50 points

Quizzes 1 - 5	100 points
Exam 1	100 points
Exam 2	100 points
<b>TOTAL</b>	<b>500 points</b>

## FREQUENTLY ASKED QUESTIONS

- **What's the best way to go about managing my time for this class?**

Successful students (those that get A's and B's) use their time wisely. The standard formula for college coursework is that for every 1 hour of credit a student will spend 3 to 6 hours (and sometimes more) of studying and completing homework. Thus, a 4 credit course will require an average of 12 to 24 hours of homework (reading, research, studying) per week. As a result, successful students plan their time so that they keep up with assignments by maintaining a pace that fits the course schedule. They also communicate with the instructor often so that they can receive feedback on their work. Please note the class is cumulative in nature. A good understanding of the material in the first part of the semester is necessary in order to proceed successfully throughout the remainder of the semester.

- **How can I find out how I did on exams and assignments?**

All assignments will be returned via electronic uploads to Canvas. I encourage you to review graded assignments and to contact me with any questions. Graded quizzes will be available to review after the due date.

- **I missed an assignment due date, now what?**

Late assignments (defined as assignments submitted between 1 minute and 3 days after the due date) will be accepted for  $\frac{1}{2}$  credit. Assignments will not be accepted beyond this point for credit. If you experience technical difficulties with submitting assignments, contact U-online for technical assistance immediately at 801-585-5959 or call me at 801-581-8376.

- **What happens if I miss a quiz?**

Quizzes on Canvas may not be submitted late for credit at any point.

## • What if I miss an exam?

There will be no make-up exams without prearranged permission from the instructor. If the incident resulting in a missed exam occurs on the due date, you will have 24 hours to contact your instructor. Physician's verification is required for illnesses or other documentation (e.g., doctor's note, accident report, death certificate) for medical or emergency circumstances beyond your control. Late exams must be completed within one week. To contact your instructor, messages can be left on their e-mail or voice mail prior to the scheduled exam time or within 24 hours after the incident. Missed exams without permission or acceptable medical or emergency excuse will be assigned a grade of zero.

If you know in advance that you need to take the exam at a different time than scheduled, your instructor will work with you to make arrangements. These *arrangements must be scheduled* at least 1 week in *advance* of the exam for a time before the originally planned test date (i.e., if you are jetting to Cabo during the week of the exam, you may take the exam before you leave).

## GRADE SCHEME

The following grading standards will be used in this class:

Grade	Range
A	100 % to 92.5%
A-	< 92.5 % to 89.5%
B+	< 89.5 % to 87.5%
B	< 87.5 % to 82.5%
B-	< 82.5 % to 79.5%
C+	< 79.5 % to 77.5%
C	< 77.5 % to 72.5%
C-	< 72.5 % to 69.5%
D+	< 69.5 % to 67.5%
D	< 67.5 % to 62.5%
D-	< 62.5 % to 59.5%
F	< 59.5 % to 0.0%

## COURSE RESPONSIBILITIES

Online courses require significant self-motivation. Online courses are different than on-campus courses

and online learning is not ideal for everyone. Some lessons take a considerable amount of time to complete. Please note that not all modules are created equal. Some may take a bit more time than others. Some people believe this to be a much easier way to study this subject than in the on-campus frame work. Others may feel very intimidated at first. Be patient as you work your way through the first few modules. If you are serious about the material, you will learn as much as, if not more than, most on-campus students about this subject and develop reading and communication skills that are vital to the workforce of the 21st century.

- **Electronic or equipment failure**: It is your responsibility to maintain your computer and related equipment in order to participate in the online nature of the course.
- **Document archiving**: You are responsible for making sure your assignments, including attachments, are received before the deadline. Students are also responsible for ensuring that the documents submitted are the correct document to be graded.
- **Naming conventions and software type**: You are responsible for submitting the assignment with the required naming convention, correct file extension, and using the software type and version required for the assignment. See assignment instructions for acceptable formats.
- **Classroom equivalency**: Discussion threads, e-mails, and chat rooms are all considered to be equivalent to classrooms, and student behavior within those environments shall conform to the University of Utah Student Code. Specifically:
  - Posting photos or comments that would be off-topic in a classroom are still off-topic in an online posting.
  - Off-color language and photos are never appropriate.
  - Using angry or abusive language is called "flaming", is not acceptable, and will be dealt with according to the Student Code.
  - Course e-mails, e-journals, and other online course communications are part of the classroom and as such, are University property and subject to GRAMA regulations and the Student Code. Privacy regarding these communications between correspondents must not be assumed and should be mutually agreed upon in advance, in writing.

## INSTITUTIONAL POLICIES & PROCEDURES

### Faculty and Student Responsibilities


"All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and

progressing to dismissal from class and failing grade. Students have the right to appeal such action to the Student Behavior Committee.”

“Faculty...must strive in the classroom to maintain a climate conducive to thinking and learning.” PPM 8-12.3, B.

“Students have a right to support and assistance from the University in maintaining a climate conducive to thinking and learning.” PPM 8-10, II. A.

## Wellness Statement

Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness - [www.wellness.utah.edu](http://www.wellness.utah.edu)   
(<http://www.wellness.utah.edu>); 801-581-7776.

## Academic Dishonesty

The instructor of this course will take appropriate actions in response to Academic Dishonesty, as defined the University’s Student Code. Acts of academic dishonesty include but are not limited to:

- **Cheating:** using, attempting to use, or providing others with any unauthorized assistance in taking quizzes, tests, examinations, or in any other academic exercise or activity. Unauthorized assistance includes:
  - Working in a group when the instructor has designated that the quiz, test, examination, or any other academic exercise or activity be done “individually;”
  - Depending on the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
  - Substituting for another student, or permitting another student to substitute for oneself, in taking an examination or preparing academic work;
  - Acquiring tests or other academic material belonging to a faculty member, staff member, or another student without express permission;
  - Continuing to write after time has been called on a quiz, test, examination, or any other academic exercise or activity;
  - Submitting substantially the same work for credit in more than one class, except with prior approval of the instructor; or engaging in any form of research fraud.
- **Falsification:** altering or fabricating any information or citation in an academic exercise or activity.
- **Plagiarism:** representing, by paraphrase or direct quotation, the published or unpublished work of another person as one’s own in any academic exercise or activity without full and clear acknowledgment. It also includes using materials prepared by another person or by an agency engaged in the sale of term papers or other academic materials.

## Sexual Harassment

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education. Title IX covers discrimination in programs, admissions, activities, and student-to-student sexual harassment. It is the policy of the University of Utah to maintain an academic and work environment free of sexual harassment for students, faculty, staff and participants. A claim under this policy may be brought by any faculty, staff member, student or participant based on the conduct of any University employee or student that is related to or in the course of University business. A claim may also be brought by an administrator acting on behalf of the University. The Office of Equal Opportunity and Affirmative Action (OEO/AA) will handle all alleged sexual harassment matters pursuant to the Procedures set forth in Policy 5-210.

Any student, staff, faculty member, or participant in university services or activities who believes that there is or has been sexual harassment should contact any of the following:

1. the cognizant academic chair of the department or the dean of the college within which the conduct occurred;
2. the immediate supervisor or director of the operational unit within which the conduct occurred;
3. the Human Resources Division (Address: 420 Wakara Way, Suite 105, Salt Lake City, Utah 84108; Phone: 801-581-2169; TDD: 801-585-9070);
4. directors or deans of Student Affairs and Services (Associate Dean- SW 108; Phone: 801-581-8828);
5. or the Office of Equal Opportunity and Affirmative Action (201 South Presidents Circle, John Park Building, Room 135, Salt Lake City, Utah 84112; Phone/TDD: 801-581-8365).

Once informed, the supervisor, chair or dean shall consult with OEO/AA. Similarly, OEO/AA shall advise as appropriate the cognizant dean, staff director or administrator of any complaints of sexual harassment OEO/AA receives concerning a member of the faculty, staff or student body.

## Withdrawal Policy and "I" Grade Policy

Failure to withdraw from school results in a E or EU grade being recorded in all classes.

Students may officially withdraw (W) from a class or all classes after the drop deadline through the midpoint of a course. A "W" grade is recorded on the transcript and appropriate tuition/fees are assessed. The grade of "W" is not used in calculating the student's GPA.

For more information concerning the withdrawal policy, visit the [Office of the Registrar website](https://registrar.utah.edu/handbook/withdrawal.php).  
(<https://registrar.utah.edu/handbook/withdrawal.php>)

An Incomplete grade can be given for work not completed due to circumstances beyond your control. You must be passing the course and have completed at least 80% of the required coursework. Arrangements must be made between you and the instructor concerning the completion of the work. You may not retake a course without paying tuition. If you attend class during a subsequent term, in an effort to complete the coursework, you must register for the course. Once the work has been completed, the instructor submits the grade to the Registrar's Office. The I grade will change to an E if a new grade is not reported within one

year. A written agreement between you and the instructor may specify the grade to be given if the work is not completed within one year. Copies of the agreement are kept by the instructor and the academic department.

## Students with Disabilities

The University of Utah does not discriminate on the basis of race, color, religion, national origin, sex, age, status as a disabled individual, sexual orientation, gender identity/expression, genetic information or protected veteran's status, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services.

Additionally, the University endeavors to provide reasonable accommodations and to ensure equal access to qualified persons with disabilities. Inquiries concerning perceived discrimination or requests for disability accommodations may be referred to the University's Title IX/ADA/Section 504 Coordinator:

Director, Office of Equal Opportunity and Affirmative Action

201 South Presidents Circle, Rm.135






Salt Lake City, UT, 84112

801-581-8365 (voice/tdd)










801-585-5746 (fax)







[www.oeo.utah.edu](http://www.oeo.utah.edu) [\\_ \(http://www.oeo.utah.edu/\)](http://www.oeo.utah.edu).

## Course Summary:

Date	Details	
Wed Jan 9, 2019	 <a href="https://utah.instructure.com/calendar?event_id=1475339&amp;include_contexts=course_541661">Lecture 1: Metabolism Introduction (https://utah.instructure.com/calendar?event_id=1475339&amp;include_contexts=course_541661)</a>	12am
Wed Jan 16, 2019	 <a href="https://utah.instructure.com/calendar?event_id=1476193&amp;include_contexts=course_541661">Lecture 2: Cell signaling (https://utah.instructure.com/calendar?event_id=1476193&amp;include_contexts=course_541661)</a>	12am
Wed Jan 23, 2019	 <a href="https://utah.instructure.com/calendar?event_id=1476195&amp;include_contexts=course_541661">Lecture 3: Carbohydrates - Introduction (https://utah.instructure.com/calendar?event_id=1476195&amp;include_contexts=course_541661)</a>	12am
Wed Jan 30, 2019	 <a href="https://utah.instructure.com/calendar?event_id=1476196&amp;include_contexts=course_541661">Lecture 4: Carbohydrates - Metabolism 1 (https://utah.instructure.com/calendar?event_id=1476196&amp;include_contexts=course_541661)</a>	12am
	 <a href="https://utah.instructure.com/courses/541661/assignments/5776822">Assignment 1: Cell signaling (https://utah.instructure.com/courses/541661/assignments/5776822)</a>	due by 11:59pm



Fri Feb 1, 2019	 <b><u>Quiz 1: Metabolism and cell signaling</u></b> ( <a href="https://utah.instructure.com/courses/541661/assignments/5758097">https://utah.instructure.com/courses/541661/assignments/5758097</a> )	due by 11:59pm
Wed Feb 6, 2019	 <b><u>Lecture 5: Carbohydrates - Metabolism 2</u></b> ( <a href="https://utah.instructure.com/calendar?event_id=1476197&amp;include_contexts=course_541661">https://utah.instructure.com/calendar?event_id=1476197&amp;include_contexts=course_541661</a> )	12am
Wed Feb 13, 2019	 <b><u>Lecture 6: Carbohydrates - Metabolism 3</u></b> ( <a href="https://utah.instructure.com/calendar?event_id=1476199&amp;include_contexts=course_541661">https://utah.instructure.com/calendar?event_id=1476199&amp;include_contexts=course_541661</a> )	12am
Wed Feb 20, 2019	 <b><u>Lecture 7: Lipids - Basics</u></b> ( <a href="https://utah.instructure.com/calendar?event_id=1476201&amp;include_contexts=course_541661">https://utah.instructure.com/calendar?event_id=1476201&amp;include_contexts=course_541661</a> )	12am
Wed Feb 27, 2019	 <b><u>Lecture 8: Lipids - Metabolism 1</u></b> ( <a href="https://utah.instructure.com/calendar?event_id=1476203&amp;include_contexts=course_541661">https://utah.instructure.com/calendar?event_id=1476203&amp;include_contexts=course_541661</a> )	12am
	 <b><u>Assignment 2: Carbohydrate Metabolism</u></b> ( <a href="https://utah.instructure.com/courses/541661/assignments/5776823">https://utah.instructure.com/courses/541661/assignments/5776823</a> )	due by 11:59pm
Fri Mar 1, 2019	 <b><u>Quiz 2: Carbohydrate metabolism</u></b> ( <a href="https://utah.instructure.com/courses/541661/assignments/5758100">https://utah.instructure.com/courses/541661/assignments/5758100</a> )	due by 11:59pm
	 <b><u>Exam 1</u></b> ( <a href="https://utah.instructure.com/courses/541661/assignments/5758105">https://utah.instructure.com/courses/541661/assignments/5758105</a> )	due by 11:59pm
Wed Mar 6, 2019	 <b><u>Lecture 9: Lipids - Metabolism 2</u></b> ( <a href="https://utah.instructure.com/calendar?event_id=1476204&amp;include_contexts=course_541661">https://utah.instructure.com/calendar?event_id=1476204&amp;include_contexts=course_541661</a> )	12am
Wed Mar 13, 2019	 <b><u>Lecture 10: Disorders of lipid metabolism</u></b> ( <a href="https://utah.instructure.com/calendar?event_id=1476205&amp;include_contexts=course_541661">https://utah.instructure.com/calendar?event_id=1476205&amp;include_contexts=course_541661</a> )	12am
Wed Mar 27, 2019	 <b><u>Lecture 11: Proteins - chemistry and digestion</u></b> ( <a href="https://utah.instructure.com/calendar?event_id=1476209&amp;include_contexts=course_541661">https://utah.instructure.com/calendar?event_id=1476209&amp;include_contexts=course_541661</a> )	12am
	 <b><u>Assignment 3: Lipid Metabolism</u></b> ( <a href="https://utah.instructure.com/courses/541661/assignments/5776824">https://utah.instructure.com/courses/541661/assignments/5776824</a> )	due by 11:59pm
Fri Mar 29, 2019	 <b><u>Quiz 3: Lipid metabolism</u></b> ( <a href="https://utah.instructure.com/courses/541661/assignments/5758096">https://utah.instructure.com/courses/541661/assignments/5758096</a> )	due by 11:59pm
Wed Apr 3, 2019	 <b><u>Lecture 12: Amino acid metabolism</u></b> ( <a href="https://utah.instructure.com/calendar?event_id=1476210&amp;include_contexts=course_541661">https://utah.instructure.com/calendar?event_id=1476210&amp;include_contexts=course_541661</a> )	12am

Wed Apr 10, 2019	 <b><u>Lecture 13: Integration of metabolism</u></b> <a href="https://utah.instructure.com/calendar?event_id=1476213&amp;include_contexts=course_541661">           (https://utah.instructure.com/calendar?event_id=1476213&amp;include_contexts=course_541661)         </a>	12am
Wed Apr 17, 2019	 <b><u>Lecture 14: Role of microbiota in energy metabolism</u></b> <a href="https://utah.instructure.com/calendar?event_id=1476214&amp;include_contexts=course_541661">           (https://utah.instructure.com/calendar?event_id=1476214&amp;include_contexts=course_541661)         </a>	12am
Fri Apr 19, 2019	 <b><u>Quiz 4: Protein metabolism</u></b> <a href="https://utah.instructure.com/courses/541661/assignments/5758099">           (https://utah.instructure.com/courses/541661/assignments/5758099)         </a>	due by 11:59pm
Wed Apr 24, 2019	 <b><u>Assignment 4: Biochemistry in action</u></b> <a href="https://utah.instructure.com/courses/541661/assignments/5776825">           (https://utah.instructure.com/courses/541661/assignments/5776825)         </a>	due by 11:59pm
Fri Apr 26, 2019	 <b><u>Quiz 5: Integration of metabolism</u></b> <a href="https://utah.instructure.com/courses/541661/assignments/5758098">           (https://utah.instructure.com/courses/541661/assignments/5758098)         </a>	due by 11:59pm
	 <b><u>Exam 2</u></b> <a href="https://utah.instructure.com/courses/541661/assignments/5758106">           (https://utah.instructure.com/courses/541661/assignments/5758106)         </a>	due by 11:59pm