

GPC Meeting  
2/14/17  
2:30 PM  
Cater-Mattil 124A

Members present: N. Turner, E. Castell-Perez, Su. Talcott, C. Gomes, R. Chapkin, Y. Sun, S. Riechman, St. Talcott, B. Chew, K. de Ruiter

Members absent: G. Acuff

Minutes:

1. Su. Talcott has a conflict with meetings on the 2<sup>nd</sup> and 4<sup>th</sup> Tuesday of each month. Kristin will send an email to GPC to look for an alternative time.
2. Minutes from December 2016 meeting approved.
3. Update from Suzanne Talcott on Curriculum committees
  - a. Master of Clinical Nutrition *\*Memo from Curriculum Committee attached*
    - i. GPC voted in favor of professional degree: Master of Clinical Nutrition
    - ii. Required courses were approved, but 3 genetics credits with different course options will be required instead of a specific genetics course.
    - iii. GPC recommends to limit the number of electives and give only 2-3 options per semester
    - iv. Students will take most credit hours in year one. Year 2 will consist of internship and NUTR 685 hours. Some NUTR 685 hours from year 2 can be moved to summer I to increase rigor during summer term.
    - v. NUTR 685 needs to be defined - what will students work on while enrolled in directed studies credits? The original plan was a literature review or individualized project.
    - vi. GPC would like to view sample degree plan that shows order of courses per semester.
    - vii. Program will next go to full faculty for discussion/vote.
  - b. Nutrition Core Courses –Because of the lack of consensus on what core courses should be and the different research areas of students (human nutrition versus animal nutrition) the committee decided against the implementation of core nutrition courses.
4. NFSC website has been updated with dual NUTR/KINE MS, new graduate pages, and new graduate student directory.
5. Faculty membership renewal is still ongoing. Several faculty have declined to continue membership. S. Talcott sent a reminder email to faculty that have not yet responded.
6. Travel requests – K. de Ruiter will send copy of travel award email to faculty listservs.
7. Food Science Curriculum update at next meeting

January 30, 2016

MEMORANDUM

TO: the members of the Graduate Program Committee  
Department of Nutrition and Food Science  
Dr. Gary R. Acuff,  
Dr. Elena Castell-Perez (chair),  
Ms. Kristen De Ruiter *ex officio*  
Dr. Carmen Gomes,  
Dr. Steven Riechman  
Dr. Yuxiang Sun  
Dr. Susanne Talcott  
Dr. Nancy Turner (chair)  
Dr. Stephen Talcott *ex officio*

FROM: the members of the Subcommittee for the Graduate Curriculum of Nutrition  
Ms. K. De Ruiter *ex officio*  
Dr. K. Kubena  
Dr. J. Lawler  
Dr. S. Riechman  
Dr. Steve Talcott *ex officio*  
Dr. Su. Talcott (chair)  
Dr. C. Wu

SUBJECT: Professional Master of Clinical Nutrition Program and Graduate core courses for NUTR

**A) Professional Master of Clinical Nutrition Degree Program**

In collaboration with Dr. David Reed, Ms. Karen Geismar, Director of the Dietetic Internship Program, and Ms. Susan Roberts, MS, RDN, LD, CNSC. Dietetic Internship Director, Baylor College of Medicine, Houston, TX, this subcommittee continued the work of the previous members on the planned degree program in clinical nutrition in order to continue the institutional approval process with the goal of enrolling students in the Fall of 2019.

1. The subcommittee moves to create the new degree program in clinical nutrition as a PROFESSIONAL MASTER of CLINICAL NUTRITION instead of a non-thesis Master of Science degree.
2. The subcommittee moves to specify the following courses and course categories as required for this new degree (**Table 1**). This selection of courses seems most appropriate for a professional degree in clinical nutrition as specified by Ms. Karen Geismar and her colleagues at Baylor College of Medicine, Houston, TX.
3. The subcommittee moves to approve a non-exclusive list of preferred elective courses (**Table 2**).

# Master of Clinical Nutrition

Clinical NUTR MS - Courses	Requirements
NUTR 642 Biochem (counts as Nutr or Biochem)	6 h NUTR CORE COURSES 3h Genetics 3h Physiology
NUTR 630 Nutr Disease (Nutrition)	
KINE 637 Exercise Physiology I	
GENE 603 Genetics (4h)??	
STATISTICS 601 – 3 CREDITS	STATISTICS – 3 CREDITS
NUTR 681 SEMINAR – 2 h	NUTR SEMINAR – 2 CREDITS
NUTR 684 Internship – 5h NUTR 685 Directed Studies – 4h	NUTR684 Internship – 5h NUTR 685 Directed Studies – 4h
NUTRITION OR APPROVED ELECTIVES – 12 CREDITS, e.g. NUTR689 Nutr and Healthy Aging NUTR610 Pharmacometrics NUTR689 Nutr, Health, Epigenetics FSTC689	NUTRITION OR APPROVED ELECTIVES – 12 CREDITS
<b>TOTAL: 36 HOURS</b>	<b>TOTAL: 36 HOURS</b>

**Year 1:** On Campus

**Year 2:** Online + Internship

**Table 1:** Overview of required courses and course categories for the Master of Clinical Nutrition (Professional Degree)

Elective Courses	Course Descriptions
NUTR 613 Protein Metabolism	Basic concepts and recent advances in protein metabolism in animals with emphasis on physiological and nutritional significances; discussion of protein digestion; absorption of peptides; absorption, synthesis and degradation of amino acids; hormonal and nutritional regulation of protein turnover; determination of protein quality and requirement
NUTR 645 Nutr & Vits	Chemistry and metabolism of the fat soluble and water soluble vitamins and their roles in animals; integrates cellular biochemistry and metabolism of the vitamins in vertebrate animal.
NUTR 650 Nutr & Min	Nutritional significance of minerals in animal metabolism; chemical, biochemical and physiological role of minerals and homeostatic control in animal metabolism.
NUTR689 Obesity Concepts and Challenges	This course is designed to provide an overview of obesity for students of food science, nutrition, health and related majors. Students will learn to understand and critique the research literature on the subject from a variety of perspectives (genetics, exercise physiology, sociology) while emphasizing the food and nutrition aspects.
ANTH 627 Human Paleonutrition	Evaluation of past human diets and subsistence patterns from the perspective of research in archaeology, zooarchaeology, ethnobotany, bioarchaeology and cultural anthropology
HLTH 607 International Health	health and healthcare delivery around the world. how various organizations are addressing global health concerns: includes emerging diseases, eradication of disease, global nutrition, family planning: emphasis on providing health information on a cross cultural environment.
KINE 628 Nutrition in Sport Exercise	Interaction between nutrition, exercise, and athletic performance including: biochemical and physiological aspects of nutrition and exercise; nutrition for training and competition; exercise and oxidant stress; nutritional supplements and ergogenic acids; and nutritional aspects of body composition and weight control

VIBS 619 Food Toxicology II	Public health implications of toxic factors in foods, their source, nature, occurrence and distributions; emphasis on mycotoxins including their isolation, detection, identification and toxicology; study of state-of-the-art food safety research techniques
NUTR 618 Lipid Metabolism	This is a comparative biology/biochemistry course. It will not focus solely on human lipid metabolism, nor will it focus only on rodent models or livestock species. The goal of the course is to provide the student with an understanding of the role of lipid metabolism in normal and dysfunctional growth and metabolism.
COMM669 Survey of Health Communication	Theories and research in health communication considering functions and outcomes of communication processes in various health contexts, ranging from interpersonal settings to public campaigns. Emphasis on providing framework for synthesizing and critically evaluating health communication research.
HLTH669 Prof Skills in Health Education	Provides the tools necessary to become an effective health education professional; issues will be discussed that will be critical to the success of a future university faculty member.
NUTR610 Nutr. Pharmacometrics of Food Comp.	Introduction into nutritional pharmacokinetics and pharmacodynamics of food compounds; specific examples of toxicological and pharmacological effects of food compounds.
NUTR 689 Spec. Top. Nutr. Healthy Aging	This course is a fusion of biology of aging and geriatric nutrition. It integrates biology of aging, nutritional impacts on longevity and age-associated diseases, and nutritional interventions for healthy aging.
HLTH 635 - Race, Ethnicity and Health	Explore racial, ethnic, and cultural dimensions that underlie health and health disparities; special attention to culture, social economic status, and governmental policies as they influence the adaptations of health practices.
HLTH 637 Pub. Health, Persp. of Nutr, Aging, Funct	This course explores the complex public health issues associated with the interrelationships of older age, nutritional health, chronic conditions, and independent functioning.

**Table 2:** Preferred Electives and course descriptions

### **B) Graduate core courses for scientific NUTR degrees**

In collaboration with previous members of this subcommittee we have unanimously voted to put forth the following motions to the GPC for consideration in an effort to focus the core courses for NUTR as an optimal foundation for all scientific NUTR grad degrees.

1. The subcommittee moves to specify core courses for all scientific Nutrition graduate programs that currently include

- NUTR-642 (revised to be taught in a modular structure, **attachment 3**)

In future an NUTR-specific should be developed to complement NUTR-642 that does not require NUTR 641 as a prerequisite. NUTR-641 may be taken in fulfillment of the biochemistry requirement.

In future additional courses may be added to the core curriculum.

2. The subcommittee moves for all other requirements regarding the number of credits for physiology, statistics, seminar, directed studies and research, as well as approved elective credits to remain as currently approved.

cc: Dr. B. Chew  
Members of the Subcommittee for the Graduate Curriculum of Nutrition  
Ms. K. De Ruiter *ex officio*  
Dr. K. Kubena  
Dr. J. Lawler  
Dr. S. Riechman  
Dr. Steve Talcott *ex officio*  
Dr. Su. Talcott (chair)  
Dr. C. Wu

### **Attachments**

1. Updated Syllabus for NUTR-642

# NUTR 642 – Nutritional Biochemistry II, 3 credits

## Course Syllabus, Spring 2017

- Instructor:** Chaodong Wu, MD, PhD  
Cater Mattil 217A  
**Phone:** 979 458 1521                      **Email:** cdwu@tamu.edu  
**Office hour:** By appointment
- Time:** Tues/Thur at 12:45 – 2:00 PM
- Location:** Kleberg Center 400
- Prerequisite:** NUTR 470, BICH 410, and/or Approval of Instructor
- Textbook:** A text is not required. Certain nutrition, biochemistry, and physiology books are recommended.

**Course Description:** This course is the integration of nutrition, biochemistry, and other life sciences, and focuses on key nutrition and biochemistry aspects related to how nutrients are involved in health and disease. Specifically, this course covers topics related to 1) nutrients and their needs in healthy and unhealthy individuals; 2) nutrients and their metabolism and the pertinent regulation; 3) nutrient sensing and signaling pathways; 4) nutritional and hormonal regulation of gene expression; and 5) genetics and epigenetics.

This course is designed to fit the needs of graduate students with research interests in dietetics, general nutrition, and/or molecular nutrition. This course is comprised of four modules. Depending on student's research interest, a combination of three modules will be used for course assessment, e.g., writing assignments.

Module 1: Nutrients and Diet Composition

Module 2: Nutrient metabolism and Regulatory Biochemistry

Module 3: Nutrition in Health Promotion and Disease Prevention

Module 4: Molecular and Cellular Nutrition

Suggested/recommended module combinations

Dietetic Interest: Modules 1, 2, and 3

Molecular Interest: Modules 2, 3, and 4

General Interest: Modules 1, 2, and 3 or 4

**Course Objectives and Learning Outcomes:** Upon successful completion of the course, students should have a comprehensive understanding of that 1) diet composition and its impact on health; 2) nutrients are metabolized to maintain energy homeostasis; 3) nutritional approaches are used for health

promotion and disease prevention; and 4) nutrient metabolism involves in and interacts with a wide variety of molecular and cellular events.

**Course Content:** See Appendix I

**Writing Assignments and Oral Presentation:** See Appendix II

<b>Evaluation:</b>	Exam	100	
	Writing Assignment 1	100	
	Writing Assignment 2	100	
	Oral Presentation	100	
	<b>Total</b>	<b>400 points</b>	

<b>Final grade:</b>	A	360 or better
	B	320 – 359 points
	C	280 – 319 points
	D	240 – 279 points
	F	< 239 points

**Academic integrity statement:**

*An Aggie does not lie, cheat, or steal or tolerate those who do.*

*Photocopy, record, or exchange exam materials are prohibited.*

**Make-Up Policy:** Make-up examinations will be given only for University-authorized absences. It is the student's responsibility to arrange a date and time with the instructor within 24 hours of missing the exam.

**ADA statement:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit <http://disability.tamu.edu>.

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## Course Schedule (Subject to change)

### Week 1

Tues, Jan 17 Introduction to the course, content, and methods of evaluation;  
**Lecture 1:** Introduction of Nutrients and Diet Composition

Thur, Jan 19 **Lecture 2:** Nutrient Metabolism and Regulatory Biochemistry I  
(Digestion, absorption, transporters)

### Week 2

Tues, Jan 24 **Lecture 3:** Nutrient Metabolism and Regulatory Biochemistry II  
(Metabolic fluxes, nutritional and hormonal regulation)

Thur, Jan 26 **Lecture 4:** Nutrition in Health and Disease I  
(Inflammation, fat deposition, insulin resistance)

### Week 3

Tues, Jan 31 **Lecture 5:** Nutrition in Health and Disease II  
(Nutritional intervention)

Thur, Feb 02 **Lecture 6:** Nutrition in Health and Disease III  
(Nutritional aspects of caloric restriction and life style)

### Week 4

Tues, Feb 7 **Lecture 7:** Molecular and Cellular Nutrition I  
(Nutrient sensing and cell signaling)

Thur, Feb 09 **Lecture 8:** Molecular and Cellular Nutrition II  
(Nutritional regulation of gene expression)

### Week 5

Tues, Feb 14 **Lecture 9:** Molecular and Cellular Nutrition III  
(Genetics and epigenetics in nutrition)

Thur, Feb 16 **Lecture 10:** Special Nutrition Topic I: Macronutrients and Health

### Week 6

Tues, Feb 21 Walk (no class)

Thur, Feb 23 **Exam (lectures 1 through 9)**

### Week 7

Tues, Feb 28 **Lecture 11:** Special Nutrition Topic II: Micronutrients and Health

Thur, Mar 02 **Lecture 12:** Special Nutrition Topic III: Microbiome and Health

**Week 8**

Tues, Mar 7 **Lecture 13:** Approaches of biochemical and other life sciences for nutrition research (cell culture, genetically modified mice, radiology)

Thur, Mar 9 **Discussion and Presentation**

**Week 9**

Tues, Mar 14 **Spring break**

Thur, Mar 16 **Spring break**

**Week 10**

Tues, Mar 21 **Discussion and Presentation**

Thur, Mar 23 **Discussion and Presentation**

**Week 11**

Tues, Mar 28 **Discussion and Presentation**

Thur, Mar 30 **Discussion and Presentation** (Research Assignment #1 Due)

**Week 12**

Tues, Apr 04 **Discussion and Presentation**

Thur, Apr 06 **Discussion and Presentation**

**Week 13**

Tues, Apr 11 **Discussion and Presentation**

Thur, Apr 13 **Discussion and Presentation**

**Week 14**

Tues, Apr 18 **Discussion and Presentation**

Thur, Apr 20 Teaching evaluations; **Conclusion** (Research Assignment #2 Due)

# Appendix I: Course Content

## Module 1: Nutrients and Diet Composition

Topics are related to macronutrients and micronutrients, as well as their composition in relation to physiological needs health.

### 1. Macronutrients

Glycemic index, fiber-enriched diets  
Mono-unsaturated fatty acids, poly-unsaturated fatty acids,  
Amino acids, soy foods

### 2. Micronutrients and others

Fruits and vegetables  
Minerals and vitamins  
Food-derived bioactives

## Module 2: Nutrient Metabolism and Regulatory Biochemistry

Topics are related to macronutrients and micronutrients, nutrient transportation/uptake, and metabolic homeostasis

### 1. Nutrient uptake and transporters

SGLT1, GLUT2, GLUT4, and its physiological regulation  
FABPs and its regulation  
LDLr and its physiological regulation  
Peptides, amino acid transporters  
Sodium, potassium, vitamins, water, and others

### 2. Metabolic homeostasis

Glucose uptake, storage, and endogenous production, and its regulation  
VLDL transportation, endogenous VLDL production, and its regulation  
Endogenous amino acid production  
Glucose-alanine cycle  
Micronutrient homeostasis

### 3. Nutritional endocrinology

Glucose-stimulated insulin secretion  
Adipocyte-derived leptin, adiponectin, and others  
GLP1, GLP2, gastrin, CCK, and PYY  
NPY, AgRP, POMC,

### **Module 3: Nutrition in Health Promotion and Disease Prevention**

Topics are related to how unhealthy nutrition causes or exacerbates chronic diseases, and nutritional and biochemical insights of chronic diseases. Additional topics will cover how nutritional approaches are used for disease management.

1. Inflammation, fat deposition, and insulin resistance
2. Dietary intervention
3. Functional foods and bio-actives
4. Nutritional aspects of caloric restriction and life style
5. Timed nutrition (circadian clocks and nutrition)

### **Module 4: Molecular and Cellular Nutrition**

Topics are related to nutrient sensing and signaling transduction, nutritional and hormonal regulation of gene expression, and genetics and epigenetics in nutrition.

1. Nutrient sensing

- Glucokinase and insulin secretion
- AMPK and fatty acid oxidation
- mTOR and its role in cell growth and feeding regulation
- Sodium sensing and blood pressure regulation
- Calcium uptake and regulation
- Vitamins

2. Cellular signaling

- Receptors that respond to glucose, fatty acids, and metabolites
- Pathways involved in apoptosis, cell proliferation, and/or cell cycle

3. Nutritional regulation of gene expression

- Glucose and/or fatty acids regulate transcription factors (ChREBP, SREBP1c, and etc.)
- Inflammatory genes
- Genes of apoptosis, cell proliferation, and/or cell cycle
- Non-coding RNAs

4. Genetics and epigenetics in nutrition

- Nutrient-gene interaction
- Epigenetics in nutrition (DNA methylation, histone/protein methylation, and acetylation)

## **Appendix II: Writing Assignments & Oral Presentation**

A student must complete two writing assignments. Based on research interest, he or she can choose two topics for writing assignments from two of three Modules (one topic per Module). In addition, he or she needs to choose a topic from the remaining Module to complete a PowerPoint presentation. For example, a PhD student with research interest in molecular nutrition can choose a topic from Module 1 for the first writing assignment, and a topic from Module 2 for the second writing assignment, and a topic from Module 4 for oral presentation.

### Recommended Modules

Dietetic Interest: Modules 1, 2, and 3

Molecular Interest: Modules 2, 3, and 4

General Interest: Modules 1, 2, and 3 or 4

### **Instruction for Writing Assignments**

Writing assignments are designed to assess how a student effectively gathers the appropriate information, processes the information, and identifies questions and gaps in the existing knowledge. Accordingly, it is preferred that each of the two writing reports includes the following three major components: 1) introduction of the topic; 2) current knowledge and/or key findings; and 3) knowledge gaps/challenges.

#### Specific Requirements/Recommendations

- A title highlighting the topic/question
- Clear description of the three key components
- At least 3 pages, single spaced, 1 inch margins, 12 point font
- At least 5 - 10 citations required, not included in page limit

### **Instruction for Oral (PPT) Presentation**

A student needs to choose up to three papers with a similar topic for the Module selected. It is recommended that a student prepares a 20 - 25 min presentation (18 to 25 slides) based the topic.

#### Specific Requirements/Recommendations

- A title highlighting the topic/question
- Back ground information (4 or 5 slides)
- The central hypothesis or question (1 slide)
- Major approaches (4 to 5 slides)
- Main findings/results (5 to 8 slides)
- Discussion (3 to 5 slides)

Following oral presentation, there will be a Q&A section (5 -10 min) for further discussion of the topic covered.