December 1, 2004

MEMORANDUM

TO:    David Watt, Ph.D.
       Associate Provost for Academic Affairs

FR:    Lori S. Gonzalez, Ph.D.
       Associate Dean for Academic Affairs

RE:    Course Proposals for Division of Clinical Nutrition

The College of Health Sciences Academic Affairs Committee recommends approval of the following new course proposals.

✓ CNU 501 Nutraceuticals & Functional Foods in Health & Disease Prevention

CNU 502 Obesity C2C: Cell to Community

Course proposals and syllabi are attached for review.

CONTACT PERSON: Geza Bruckner, Ph.D., Clinical Nutrition. 323-1100, ext. 8-0863
APPLICATION FOR NEW COURSE

1. Submitted by the College of Health Sciences  Date 5/28/04

Department/Division offering course: Clinical Nutrition

2. Proposed designation and Bulletin description of this course:

(a) Prefix and Number  CNU 501  
(b) Title* Nutraceuticals and Functional Foods in Health and Disease Prevention
Abrev: (Nutraceuticals)

*NOTE: If the title is longer than 24 characters (including spaces), write a sensible title (not exceeding 24 characters) for use in transcripts:

(c) Lecture/Discussion hours per week  
(d) Laboratory hours per week  
(e) Studio hours per week  
(f) Credits 2

(g) Course description: The course will cover the classification, brief history and the impact of Nutraceuticals and Functional Foods on Health and Disease. An example of nutraceuticals to be covered in the course include isoprenoids, isoflavones, flavonoids, carotenoids, lycopene, garlic, omega 3 fatty acids, sphingolipids, vitamin E and antioxidants, S-adenosyl-L-methionine, CLA, creatine, herbal products in foods and lipoic acid.

(h) Prerequisites (if any): Undergraduate organic chemistry and/or biochemistry.

(i) May be repeated to a maximum of  

(if applicable)

4. To be cross-listed as: 

Prefix & No.  Signature, Chairman, cross-listing department

5. Effective Date: 1/1/05  (semester and year)

6. Course to be offered  

(a) Fall X  
(b) Spring  
(c) Summer

7. Will the course be offered each year?  

(a) Yes  
(b) No X

(Explain if not annually): The course will be offered as an elective and will be offered every other year in rotation with other CNU courses which are currently being offered. Should student demand for the course increase it could be offered on a yearly basis.

8. Why is this course needed: The public has turned to increased intakes of nutraceutical products and industry is capitalizing on this 15 billion dollar yearly market by manufacturing more functional foods for better health maintenance and disease prevention. Nutritionists and other health professionals need to be better educated in this area in order to counsel the public on the efficacy and or risks associated with these nutraceutical and functional food products. The objectives of this course are to expose students to the diverse products that are used, enable them to understand the mechanisms of action of many of these products, know the efficacy and

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safety of the products and understand the application of these products to health maintenance and disease prevention.

9. (a) By whom will the course be taught? Geza Bruckner
(b) Are facilities for teaching the course now available? (a) Yes X (b) No
If not, what plans have been made for providing them?

10. What enrollment may be reasonably anticipated? 7 to 15 students

11. Will this course serve students in the Department primarily? (a) Yes (b) No X
Will it be of service to a significant number of students outside the Department? (a) Yes X (b) No
If so, explain
The course will serve students in the Graduate Center for Nutritional Sciences, Nursing, Physician Assistants, Health Promotion, College of Public Health.

Will the course serve as a University Studies Program course? (a) Yes (b) No X
If yes, under what Area?

12. Check the category most applicable to this course:

______ traditional; offered in corresponding departments elsewhere;

______X____ relatively new, now being widely established

______ not yet to be found in many (or any) other universities

13. Is this course part of a proposed new program? (a) Yes (b) No X
If yes, which?

14. Will adding this course change the degree requirements in one or more programs?*(a) Yes (b) No X
If yes, explain the change(s) below:

15. Attach a list of the major teaching objectives of the proposed course, outline and/or reference list to be used. Attached

16. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System has been consulted.

17. Within the Department, who should be contacted for further information about the proposed course?
Name/e-mail: Geza Bruckner gbruckn@uky.edu Phone Extension: 31100 ext 80859

*NOTE: Approval of this course will constitute approval of the program change unless other program modifications are proposed.
APPLICATION FOR NEW COURSE

Signatures of Approval:

[Signature]
Department Chair

[Signature]
Dean of the College

Date

[Signature]
Date

Date of Notice to the Faculty

*Undergraduate Council

Date

*University Studies

Date

*Graduate Council

Date

*Academic Council for the Medical Center

Date

*Senate Council

Date of Notice to Univ. Senate

*If applicable, as provided by the Rules of the University Senate

ACTION OTHER THAN APPROVAL:

CNU 501

Rev 11/98
Course Syllabus – Geza Bruckner, Office Rm 210 CTW Building, e-mail, gbruckn@uky.edu

CNU 501- Nutraceuticals and Functional Foods in Health and Disease Prevention

The public has turned to increased intakes of nutraceutical products and industry is capitalizing on this 15 billion dollar yearly market by manufacturing more functional foods for better health maintenance and disease prevention. Nutritionists and other health professionals need to be better educated in this area in order to counsel and provide guidance to the public on the efficacy and or risks associated with these nutraceutical and functional food products.

Overall objectives: The objectives of this course are to educate students regarding the diverse nutraceutical products that are used by the public, enable them to understand the mechanisms of action of many of these products, know the efficacy and safety of the products and understand the application of these products to health maintenance and disease prevention.

Course description: The course will cover the classification, brief history and the impact of nutraceuticals and functional foods on health and disease prevention. Nutraceuticals to be covered in the course include isoprenoids, isoflavones, flavonoids, carotenoids, lycopene, garlic, omega 3 fatty acids, sphingolipids, vitamin E and antioxidants, S-adenosyl-L-methionine, CLA, creatine, herbal products in foods, probiotics and prebiotics, choline and lipoic acid. Also marketing issues related to functional foods and nutraceuticals as well as stability testing will be reviewed.

Teaching Objectives:

The student upon completion of this course will be able to:

1. understand the interrelationship between nutraceuticals and health maintenance and disease prevention.
2. explain the mechanism(s) of action, genomics, proteomics, metabolomics regarding nutraceuticals and functional foods.
3. cite the evidence supporting the efficacy and safety of nutraceutical and functional food products.
4. to explain the metabolic consequences of nutraceuticals and functional foods.
5. describe the physiologic and biochemical changes associated with consumption of nutraceuticals.
6. cite the evidence for the efficacy of herbal products commonly used in functional foods.

Attendance Expectations: Students are expected to attend all classes.

Course Evaluations:

Mid Term Exam 35%
Final Exam 65% (will cover entire course)

Examination Format: Both the mid-term exam and the final exam will be a mix of short answer, fill in the blanks and/or essay style questions. The final exam will require integration of material from the entire course and specific problems addressed will be derived from material covered throughout the whole course. Questions involving essay style format will be marked for organization, logical development of ideas, grammar and spelling. Grading scales for upper level undergraduate students will be 90 to 100 A, 87 to 89 B, 75 to 80 C, 61 to 70 D, 50 and below E. Grading scales for Graduate students will be 93 to 100 A, 83 to 94 B, 75 to 84 C, 44 and below E. Graduate students will also be expected to write a paper on a selected nutraceutical topic and if the paper is not turned in they will have 3 points deducted from their total score.

Lectures – Course Topics

1. Introduction and Course Objectives: Nutraceuticals – The link between nutrition and medicine.
3. Classifying nutraceuticals
4. Understanding the continuum of evidence: RCT, case study, history of use, etc.
5. Isoprenoids, health and disease
6. Isoflavones: Source and metabolism
7. Soy protein, soy isoflavones, cardiovascular and bone health
8. Phytoestrogens: Mechanism of action, menopause, breast and prostate cancer
9. Citrus flavonoids and other natural cholesterol lowering agents
10. Antioxidants and oxidative stress: Vitamin E, flavonoids, plant phenolic compounds
12. Lycopene: Source, properties and nutraceutical potential.
15. Grape, wine and tea polyphenols – disease prevention.
16. MIDTERM EXAM.
17. Cardiovascular disease, olive oil and plant sterols
18. Omega 3 fatty acids and eicosanoids.
19. Omega 3 fatty acids and lipoprotein metabolism
20. Omega 3 fatty acids, insulin resistance and rheumatoid arthritis
21. Conjugated linoleic acid: Is it a magic bullet?
23. Application of herbs to functional foods.
24. Efficacy and safety of commonly used herbal products.
25. Probiotics and prebiotics: Theory and do they work?
27. Lycopene and lutein: Clinical uses.
29. Marketing issues for nutraceutical and functional foods.
30. FINAL EXAM

Policies related to excused absences, cheating/plagiarism, withdrawal, incomplete, final exams, and common exams can be found in your copy of Student Rights and Responsibilities.

Course Reference Material:


Bao and Fenwick, “Phytochemicals in Health and Disease”, Marcel Decker, Inc. NY, NY. 2004
The Undergraduate Council reviewed the following programs and proposals and submits the following recommendations to the Graduate and Senate Councils.

**BS Degree Programs in College of Agriculture** – Phil Kraemer
The College of Agriculture requests a minimum of 120 credit hours for each of its BS programs.

**Action:** Approved

**GLY 550 – Fundamental Geophysics (3)**
Survey of active geophysical measurements and passive geophysical observations and their relation to Earth's structure and composition. Investigation of the relationship between Earth's elastic, potentiometric, and thermodynamic properties and traditional geophysical methods for measurement (e.g., gravity, magnetics, seismic, and heat flow). Material will help students improve their quantitative problem-solving abilities, but will also emphasize the visual learning skills commonly developed in the broader geology curricula.

**Prereq:** MA 113, PHY 211 or 213 or consent of instructor.

**Action:** Approved

**CNU 501 – Nutraceuticals and Functional Foods in Health and Disease Prevention (2)**
The course will cover the classification, brief history and the impact of Nutraceuticals and Functional Foods on Health and Disease. An example of nutraceuticals to be covered in the course include isoprenoids, isoflavones, flavanoids, carotenoids, lycopene, garlic, omega 3 fatty acids, sphingolipids, vitamin E and antioxidants, S-adenosyl-L-methionine, CLA, creatine, herbal products in food and lipoic acid.

**Prereq:** Undergraduate organic chemistry and/or biochemistry.

**Action:** Approve, and defer to the Graduate Council on whether or not adequate differentiation is made between undergraduate and graduate student work.

**CNU 502 – Obesity C2C: Cell to Community** (subtitle required) (2)
This course will provide an overview of the obesity epidemic from an applied clinical as well as public health perspective. Topics to be covered include etiology, pathophysiology, evaluation, treatment, management, and prevention of obesity throughout the lifecycle.

**Action:** Approve, and defer to the Graduate Council on whether or not adequate differentiation is made between undergraduate and graduate student work as well as whether CNU 502 will be offered under different subtitles as the description appears to indicate that it specifically addresses Obesity C2C: Cell to Community.