Proposal Form For Addition And Revision Of Courses

1. Proposing College / School:
   College of Human Sciences
   Nutrition, Dietetics and Hospitality Management

2. Course Prefix and Number:
   NTRI 5830

3. Effective Term:
   Fall 2013

4. Course Title:
   Nutritional Genomics

5. Requested Action:
   - ( ) Renumber a Course
   - ( ) Add a Course
   - ( ) Revise a Course

6. Course Credit:
   Contact/Group Hours
   Maximum Hours (Repeatability): 3
   Scheduled Type
   Weekly or Per Term?
   Credit Hours
   Anticipated Enrollment

   - 3 Lecture
   - 3 50

   Total Credit Hours: 3

7. Grading Type:
   - ( ) Regular (ABCDF)
   - ( ) Satisfactory/Unsatisfactory (SU)
   - ( ) Audit

8. Prerequisites/Corequisites:
   Use "P" to indicate a prerequisite, "C" to indicate a corequisite, and "PC" to indicate a prerequisite with concurrency.
   P: NTRI 4820, NTRI 4830

9. Restrictions:
   List specific restriction in space above.
   - ( ) College
   - ( ) Major
   - ( ) Standing
   - ( ) Degree

10. Course Description:
    (20 Words or Less; exactly as it should appear in the Bulletin)
    Principles of nutrient-gene interactions and how these interactions influence human health and disease.

11. May Count Either:
    NTRI 5830 or NTRI 5850
    (Indicate if this particular course cannot be counted for credit in addition to another)

12. Affected Program(s):
    (Respond "NA" if not included in any program; attach memorandum if more space is required)
    - Program Type: Major
    - Program Title: BS in Dietetics
    - Requirement or Elective?: Required

13. Overlapping or Duplication of Other Units' Offerings:
    (If course is included in any other degree program, is used as an elective frequently by other unit(s), or is in an area similar to that covered by another college/school, attach correspondence with relevant unit)
    - ( ) Applicable
    - ( ) Not Applicable
14. Justification:

Nutritional genomics studies the genome-wide influences of nutrition in the prevention of diet-related disease. As more detailed genetic information becomes available through improved technologies, the interplay between certain food components and the genome may redefine current dietary recommendations. Dietetic professionals will need to be exposed to current concepts in nutritional genomics to be able to understand and influence health promotion and disease prevention. According to a recent survey by the International Food Information Council, 67% of Americans are favorable toward the use of genetic information to guide personal decisions about nutrition and 79% of individuals responded that they wanted genetic information as part of obtaining dietary advice. In addition, surveys of food and nutrition practitioners and students indicate low knowledge and involvement in applying nutritional genomics to patient care. It was also found that most dietetic programs across the U.S., do not provide sufficient preparation for future dieticians in terms of exposure to nutritional genomics (JADA, 105:583-588, 2005). Dieticians must be knowledgeable about emerging research on food-gene interactions and diet-gene and lifestyle modification that will promote health and decrease risk of disease. In 2010, the American Dietetic Association has passed a position recognizing the importance of nutritional genomics in the dietetics profession and recommend exposure of nutritional genomics to students and practicing dieticians.

The proposed course (NTRI 5830: Nutritional Genomics) is designed to give students the basic knowledge of diet-gene interactions and how one's genetic makeup may influence risk for chronic diseases. This course will integrate the students' knowledge of macronutrient and micronutrient physiology and metabolism and apply it to the concept of gene interactions.

(Include a concise, yet adequate rationale for the addition/revision of the course, citing accreditation, assessments (faculty, graduate, and/or external) where applicable)

15. Resources:

Not Applicable

(In indicate whether existing resources such as library materials, classroom/laboratory space, and faculty appointments are adequate to support the proposed addition/revision; if additional resources are required, indicate how such needs will be met, referencing the appropriate level of authorization -- i.e.: Dean -- where necessary; if no additional resources or shifting of resources will be necessary, respond "Not Applicable")

16. Student Learning Outcomes:

Upon completion of the course, the student will be able to:

1. understand basic knowledge of the human genome including methodology used in nutritional genomics.
2. identify how under certain circumstances and in some individuals, diet can be a serious risk for certain chronic diseases.
3. identify how common dietary chemicals act on the human genome to alter gene expression and structure.
4. identify how diet-regulated genes (and their common variants) are likely to play a role in the onset and/or severity of chronic diseases.
5. identify how dietary intervention based on knowledge of nutrition requirements, nutrition status, and genotype can be used to prevent, mitigate, or cure chronic disease.
6. identify specific ethical issues related to the use of genomic information in the practice of dietetics.

(Slate in measurable terms (reflective of course level) what students should be able to do when they have completed this course)

17. Course Content Outline:

<table>
<thead>
<tr>
<th>Week Number (s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 and 2</td>
<td>Introduction, The Human Genome</td>
</tr>
<tr>
<td>3 and 4</td>
<td>Human Genome Variability, SNPs and Disease</td>
</tr>
<tr>
<td>5</td>
<td>Exam 1 and Transcription Factors</td>
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<tr>
<td>6</td>
<td>Nutrients and Gene Expression - Carbohydrates</td>
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<td>---</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Nutrients and Gene Expression – Lipids</td>
</tr>
<tr>
<td>8</td>
<td>Nutrients and Gene Expression – Micronutrients</td>
</tr>
<tr>
<td>9</td>
<td>Exam 2 and Nutrients and Gene Expression – Phytochemicals</td>
</tr>
<tr>
<td>10 and 11</td>
<td>Nutritional Epigenetics</td>
</tr>
<tr>
<td>12</td>
<td>Nutritional Epigenetics for Embryonic Development</td>
</tr>
<tr>
<td>13</td>
<td>Exam 3 and Nutritional Epigenetics and Aging</td>
</tr>
<tr>
<td>14</td>
<td>Dietary Recommendations and Disease Prevention Using Genetic Analysis</td>
</tr>
<tr>
<td>15</td>
<td>Ethical Issues in Nutritional Genomics</td>
</tr>
<tr>
<td>16</td>
<td>Final Exam</td>
</tr>
</tbody>
</table>

(Provide a comprehensive, week-by-week breakdown of course content, including assignment due dates)

18. Assignments / Projects:

Students will write 4 abstracts based on original primary research articles in the field of nutritional genomics. This will allow students to be familiar with recent findings in the field.

All abstracts must be typed, single-spaced and no longer than one page in length. All articles that are abstracted must be original research articles from primary scientific journals. No commentary articles, review articles, or lay magazine articles will be accepted. All abstracted articles must be 2007 or later, in the appropriate topic area, and contain a nutrition component. All written abstracts will have the following bolded headings:

Title, Author(s), Citation (Journal, Volume, Pages, Year), Objectives/ Purpose, Methods, Results, Summary. One copy of the published article abstract must accompany the written abstract.

Abstracts will be due on the dates indicated on the following schedule. Abstracts turned in late (up to and including the day before the next due date will be graded at 1/2 credit unless the student has a University approved excuse. No abstracts will be accepted (grade of zero) late beyond the day before the due date for the next abstract.

Abstract Schedule
Abstract #1 due week 4  Topic: Omega-3 fats and heart disease risk
Abstract #2 due week 8  Topic: Phytochemicals and cancer
Abstract #3 due week 12 Topic: Maternal DNA methylation and obesity
Abstract #4 due week15 Topic: DASH diet and hypertension

(List all quizzes, projects, reports, activities and other components of the course grade -- including a brief description of each assignment that clarifies its contribution to the course’s learning objectives)

19. Rubric and Grading Scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>450+</td>
</tr>
<tr>
<td>B</td>
<td>400-449.9</td>
</tr>
<tr>
<td>C</td>
<td>350-399.9</td>
</tr>
<tr>
<td>D</td>
<td>300-349.9</td>
</tr>
</tbody>
</table>

Grading Scale
Three one-hour exams and a final exam (100 points each) = 400 points
Four abstracts (25 points each) = 100 points
TOTAL POINTS = 500 points
A = 450 points or more (90-100%)
B = 400 points to 449.9 (80-89%)
C = 350 points to 399.9 (70-79%)
D = 300 points to 349.9 (60-69%)
F = less than 300 points

(List all components of the course grade -- including attendance and/or participation if relevant -- with point totals for each; indicate point totals and ranges or percentages for grading scale; for SU grading, detail performance expectations for a passing grade)

20. Justification for Graduate Credit: NTRI 6830 and NTRI 5836/6836 will be proposed in the near future

(Include a brief statement explaining how the course meets graduate educational standards (i.e.: rigorous standards for evaluation, development of critical thinking and analytical skills, etc.))

(Included below are standard statements regarding course policies. If necessary, a statement may be altered to reflect the academic policies of individual faculty members and/or the academic unit or department, provided that there is no conflict with the Student Policy eHandbook, Faculty Handbook, or any existing university policy.)

POLICY STATEMENTS

Attendance: Although attendance is not required, students are expected to attend all classes, and will be held responsible for any content covered in the event of an absence.

Excused Absences: Students are granted excused absences from class for the following reasons: illness of the student or serious illness of a member of the student's immediate family, the death of a member of the student's immediate family, trips for student organizations sponsored by an academic unit, trips for university classes, trips for participation in intercollegiate athletic events, subpoena for a court appearance, and religious holidays. Students who wish to have an excused absence from class for any other reason must contact the instructor in advance of the absence to request permission. The instructor will weigh the merits of the request, and render a decision. When feasible, the student must notify the instructor prior to the occurrence of any excused absences, but in no case shall such notification occur more than one week after the absence. Appropriate documentation for all excused absences is required. Please consult the Student Policy eHandbook for more information on excused absences.

Make-Up Policy: Arrangement to make up a missed major examination (e.g.: hour exams, mid-term exams) due to properly authorized excused absences must be initiated by the student within one week of the end of the period of the excused absence(s). Except in unusual circumstances, such as the continued absence of the student or the advent of university holidays, a make-up exam will take place within two weeks of the date that the student initiates arrangements for it. Except in extraordinary circumstances, no make-up exams will be arranged during the last three days before the final exam period begins.

Academic Honesty Policy: All portions of the Auburn University student academic honesty code (Title XII) found in the Student Policy eHandbook will apply to university courses. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

Disability Accommodations: Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2086 (V/T/T).
Nutritional Genomics
Fall 2013

Course Information
Course: NTRI 5830
Course Title: Nutritional Genomics
Location and Time: TBA

Credit Hours: 3
Prerequisites: NTRI 4820 and NTRI 4830

Instructor: Kevin W. Huggins, PhD
Associate Professor
Office: 102D Poultry Science Building
Phone: 334-844-3296
e-mail: huggikw@auburn.edu
Office hours: Tuesday, Wed., and Thursday 11-noon or by appointment

Bulletin Course Description (proposed)
Principles of nutrient-gene interactions and how these interactions influence human health and disease.

I. Course Textbooks (required) and Materials
B. Additional articles provided by the instructor
C. Lecture Outlines downloaded from Canvas

II. Course Objectives
Upon completion of the course, the student will be able to:
1. understand basic knowledge and organization of the human genome including single nucleotide polymorphisms.
2. identify how under certain circumstances and in some individuals, diet can be a serious risk for certain chronic diseases.
3. identify how common dietary chemicals act on the human genome to alter gene expression and structure.
4. identify how diet-regulated genes (and their common variants) are likely to play a role in the onset and/or severity of chronic diseases.
5. identify how dietary intervention based on knowledge of nutrition requirements, nutrition status, and genotype can be used to prevent, mitigate, or cure chronic disease.
6. identify specific ethical issues related to the use of genomic information in the practice of dietetics.
III. Academic Honesty
Academic dishonesty is an offense that will be reported to the Academic Honesty Committee. All portions of the Auburn University Honesty code found in the Tiger Cub apply in this class.

IV. Course Outline (tentative)

Week Number(s) Topic

1 and 2  Introduction, The Human Genome
3 and 4  Human Genome Variability, SNPs and Disease
5  Exam 1 and Transcription Factors
6  Nutrients and Gene Expression - Carbohydrates
7  Nutrients and Gene Expression – Lipids
8  Nutrients and Gene Expression – Micronutrients
9  Exam 2 and Nutrients and Gene Expression – Phytochemicals
10 and 11  Nutritional Epigenetics
12  Nutritional Epigenetics for Embryonic Development
13  Exam 3 and Nutritional Epigenetics and Aging
14  Dietary Recommendations and Disease Prevention Using Genetic Analysis
15  Ethical Issues in Nutritional Genomics
16  Final Exam

V. Course Assignments and Grading
A. Case Studies - Students will write 4 abstracts based on original primary research articles in the field of nutritional genomics. This will allow students to be familiar with recent findings in the field.

All abstracts must be typed, single-spaced and no longer than one page in length. All articles that are abstracted must be original research articles from primary scientific journals. No commentary articles, review articles, or lay magazine articles will be
accepted. All abstracted articles must be 2007 or later, in the appropriate topic area, and contain a nutrition component. All written abstracts will have the following bolded headings:

Title, Author(s), Citation (Journal, Volume, Pages, Year), Objectives/Purpose, Methods, Results, Summary. One copy of the published article abstract must accompany the written abstract.

Abstracts will be due on the dates indicated on the following schedule. Abstracts turned in late (up to and including the day before the next due date will be graded at 1/2 credit unless the student has a University approved excuse. No abstracts will be accepted (grade of zero) late beyond the day before the due date for the next abstract.

Abstract Schedule
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Abstract #4 due wee k15 Topic: DASH diet and hypertension

B. Examinations - Three one-hour exams and a final exam (100 points each) = 400 points
Exams will be a combination of multiple choice, short answer, matching, and fill in the blank.

C. Course Grading Scale
Three one-hour exams and a final exam (100 points each) = 400 points
Four abstracts (25 points each) = 100 points

TOTAL POINTS = 500 points

A = 450 points or more (90-100%)
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F = less than 300 points

VI. Class Attendance and Make-up Policies
Students are responsible for all work covered in class whether they are present or not. Students missing case studies or examinations must have an official University excuse for the absence in order to be eligible for make-up work. The format of make-up examinations may differ from the original format.

Arrangement to make up a missed major exam (e.g. hour exams, mid-term exams) due to properly authorized excused absences must be initiated by the student within one week of the period of the excused absence(s). Except in unusual circumstances, such as the continued absence of the student or the advent of university holidays, a make-up
exam will take place within one week of the date that the student initiates arrangements for it.

The student is expected to submit all assigned work at the class period designated by the instructor. Students with an approved excuse who have not turned in an assignment and not contacted the instructor within one week after the scheduled due date will receive a zero for that assignment.

**VII. Special Accommodations for Students with Disabilities**

Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT).

Auburn University is committed to providing a working and academic environment free from discrimination and harassment and to fostering a nurturing and vibrant community founded upon the fundamental dignity and worth of all its members.