LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		06-10	App. 11-21-06	App. 12-5-06

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person	Email Address
Amadu Ayebo	ayebo@iup.edu
Proposing Department/Unit	**Phone**
BIOLOGY	(724)357-5988

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

1. Course Proposals (check all that apply)

_X_ New Course _X_ Course Prefix Change _____ Course Deletion

_____ Course Revision _X_ Course Number and/or Title Change _____ Catalog Description Change

BIOL 481: Food Protection and Safety	BIOL 270; ENVH 270: Food Protection and Safety
***Current* Course prefix, number and full title**	***Proposed* course prefix, number and full title, if changing**

2. Additional Course Designations: check if appropriate

_____ This course is also proposed as a Liberal Studies Course.

_____ This course is also proposed as an Honors College Course.

_____ Other: (e.g., Women's Studies, Pan-African)

3. Program Proposals

_____ Catalog Description Change _____ Program Revision

_____ New Degree Program _____ Program Title Change _____ Other

_____ New Minor Program _____ New Track

***Current* program name**	***Proposed* program name, if changing**

4. Approvals		**Date**
Department Curriculum Committee Chair(s)	Amadu Ayebo	3/10/06
Department Chair(s)	- SEE MEMO	4/5/06
College Curriculum Committee Chair		06/29/06
College Dean	Gerald M Burns	9/11/06
Director of Liberal Studies *		
Director of Honors College *		
Provost *		7/10/07
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs	Gail S Sechrist	11-21-06

* where applicable

Received
SEP 11 2006
Liberal Studies

Received
NOV 27 2006
Liberal Studies

Gail Sechrist

From: "Amadu D. Ayebo" <ayebo@iup.edu>
To: "Dr. Irene Kabala" <ikabala@iup.edu>
Sent: Tuesday, November 14, 2006 7:28 PM
Attach: BIOL 270 & ENVH 270_ Food Protection and Safety_.eml
Subject: Re: new course

Dear Dr. Kabala:
I apologize for the slight delay in responding to your question on the course proposal for BIOL 270; ENVH 270. Please find below the responses to your questions. Thanks for your continued consideration of the course proposal.

Amadu Ayebo
Professor of Biology

The curriculum committee has reviewed your course proposal: BIOL 270; ENVH 270 and we have some questions:

1) the course seems to be similar to HRIM 130 and might require a letter of support from that department.
Response:
Please find attached a letter of support from HRIM Department.

2) when will the course be required for majors?
Response:
The course is to replace Gen Microbiology, BIOL 241, which was a required course for Food and Nutrition majors. This course will therefore be a required course for Food and Nutrition majors.

3) how many students do you anticipate once the course is required?
Response:
Food and Nutrition department currently have 170 students in the undergraduate program. Divided over 4 years, the department would need 40-45 seats/year for their majors.

4) will future numbers affect resources?
Response:
Biology Department can continue to offer Food Protection and Safety and General Microbiology at the current level of 92 seats/4 lab section in the Fall semester but any net increase in seats or complement will require additional resources.

----- Original Message -----
From: Dr. Irene Kabala
To: ayebo@iup.edu
Sent: Thursday, September 28, 2006 10:26 AM
Subject: new course

Dear Dr. Ayebo:

The curriculum committee has reviewed your course proposal: Biol270; ENVH 270 and we have some questions:

Syllabus of Record

I. Catalog Descriptions

BIOL 270 Food Protection and Safety — 2 class hours, 3 lab hours, 3 credits (2c-03-3cr)

Prerequisites: BIOL 103 or 105 or 111; CHEM 101 and 102 or CHEM 111 and 112; or permission of instructor .

Enables students to understand factors that influence the safety and wholesomeness of food from farm to the table. Students will examine food sanitation and consumer protection standards. Not for Biology, Biochemistry or Natural Science majors. (Also offered as ENVH 270; may not be taken for duplicate credit)

ENVH 270 Food Protection and Safety — 2 class hours, 3 lab hours, 3 credits (2c-03-3cr)

Prerequisites: BIOL 103 or 105 or 111; CHEM 101 and 102 or CHEM 111 and 112; permission of instructor .

Enables students to understand factors that influence the safety and wholesomeness of food from farm to the table. Students will examine food sanitation and consumer protection standards. Not for Biology, Biochemistry or Natural Science majors. (Also offered as BIOL 270; may not be taken for duplicate credit)

II. Course Outcomes

Upon satisfactory completion of the course students will be able to:

i) explain the general concepts, principles and theories of food safety and protection;

ii) understand the significance of food safety in public health;

iii) know agents, hosts and environmental factors that affect food safety;

iv) apply quality assurance processes to disease distribution in human populations;

v) describe the role of food safety in public and environmental health.

III. Detailed Course Outline

Introduction: Terminologies & definitions (1 hour)

- Infection

- Intoxication
- Outbreak
- Basic microbiology terms
- Basic chemistry terms

Case histories with each example of contamination (some epidemiology) (2 hours)

- Biological
- Physical
- Chemical

A review of each kind of major biological hazard (2 hours)

- Bacterial
- Viral
- Fungal
- Algal
- Parasites
- Microbiological agents associated with animals
- Plant derived intoxications that mimic microbiological syndromes
- Allergy based illnesses
- Food associated conditions caused by suppression of immune system

Arrange course around each organism, giving keys to prevention, identification symptoms, epidemiology, food associations. Time and temperature relationships to disease will be emphasized.

Physical and Chemical hazards (1 hour)

- Process related
- Point of service related

Contributing Factors (2 hours)

- Time of storage
- Temperature of storage
- Time and temperature combo
- Time and temperature of process
- Contamination of ready to eat
- Hygiene and health of workers

Prevention (2 hours)

- Time and temperature
- Storage
- Heating and thawing
- Cross contamination
- Worker habits & health
- Service area cleaning & pest control

Principles of time and temperature (2 hours)

- D values
- Z- curves
- Resistant forms
- Problems – microwave, other newer heating technologies.

Food preservation methods (2 hours)

- Irradiation
- Traditional methods (e.g., drying, salting, freezing)

Standards for protection (2 hours)

- High and low storage temps
- Cooking temp
- Freezing
- Dishwashing
- Sanitizing
- Canning
- Pasteurization

Relative Risk Levels of foods (2 hours)

- Restaurants (sneeze shields etc)
- Infectious workers
- Carriers
- Public access

HACCP (3 hours)

- Principle
- Examples
- Relation to all above

STUDENT PRESENTATIONS (4 hours)

Students are assigned (individually or in pairs) a current topic in food safety for critical review, oral presentation and discussion in class.

Lecture Examinations (3 hours)

Laboratory exercises

Ten (10) relevant lab exercises: 3hours/week to be completed in 2 sessions [2 hours:1 hour] forty-eight hours apart to allow for observations. Some laboratory exercises cover more than one session.

The laboratory activities will cover the following areas:

a) Bacterial Counts of Food Products

b) Hazard Analysis Critical Control Point (HACCP) – Food Service Inspection

c) Thermal Death Reduction Rates (Temp/Time/Substrate)

d) Review of Food Safety literature and presentations – New and Emerging Food Safety Issues (Pathogens, chemicals, packaging, etc)

e) Efficacy of antimicrobial agents (detergents, alcohols, radiation) on surfaces and foods

f) Water activity (a_w) and Food Safety

g) Membrane filter techniques for total and fecal coliforms as indicator organisms

h) Personal Hygiene (Hand wash), cross contamination, and FBD epidemics

IV. Evaluation Methods

The final grade for the course will be determined by using the following evaluation methods:

a) Lecture Exams and Quizzes will contribute 60% (50% and 10% respectively) of final grade.

b) Laboratory activities will contribute 40% of final grade

a) Lecture Exams:

There will be three one-hour written examinations and a final. Examination questions will consist of a combination of essay, multiple choice, true/false, matching and completion. There will be a minimum of four (max. of six) periodic unannounced class quizzes on course content.

b) Laboratory Activities: Contributions will be as follows:

i) Two laboratory examinations covering the lab activities will account for 10% final grade.

ii) Individual lab reports will contribute 15% of final grade.

iii) Group Activity: Students will be assigned three activities requiring a collaborative effort to investigate a reported foodborne outbreak and develop safety protocols and interventions to address the outbreak. Final group reports will be evaluated and will contribute 15% of the final grade.

c) Grading Scale: The letter grading scale will be based on the following:

A	89.5-100%
B	79.5-89.4%
C	69.5-79.4%
D	59.5-69.4%
F	less than 59.5%

V. Required Textbooks

Jay, J.M., Loessner, M.J., and Golden, D.A. 2005. *Modern Food Microbiology*, 7th edition. Aspen Publications, Gaithersburg, MD.

McSwane, D., Rue, N. and Linton, R.. 2000. *Essentials of Food Safety and Sanitation*, Prentice Hall, Upper Saddle River, NJ.

VI. Special Resource Requirements: None

VII. Bibliography

A. Books - This is an active recommended text list of supporting material. This list will be revised as new texts become available:

Longree, K and Armbruster, G. 1996. *Quantity Food Sanitation*. MacMillan, New York, NY.

Chin, James *Control of Communicable Diseases in Man* 17th Ed. 2000, American Public Health Association. Washington DC.

Doyle, M.P., et. al., 1997. Food Microbiology, Fundamentals and Frontiers.

Food and Drug Administration, United States Department of Health and Human Services, (1999) *1999 Food Code*. United States Public Health Services. Washington, DC.

Gould, W.A. *Current Good Manufacturing Practices: Food Plant Sanitation*. 2nd Ed. 1994, CTI Publications, Baltimore MD.

Longree, K and Armbruster, G. 1996. *Quantity Food Sanitation*. MacMillan, New York, NY.

National Restaurant Association, Educational Foundation. 1998. *ServSafe*. Chicago, IL.

Potter, N.N. and Hotchkiss, J., 1995. *Food Science*. Chapman and Hall. New York, NY.

Rue, N., 1994. *Handbook for Safe Food Service Management*. National Assessment Institute, Prentice Hall. Englewood Cliffs, NJ.

Vela, G.R. 1997. *Applied Food Microbiology*. Star Publishers

B. Professional Journals and Government Documents

Journal of Microbiology

Morbidity and Mortality Weekly Report (MMWR), CDC

Journal of Food Technology

Environmental Health Perspectives

Journal of Environmental Health (NEHA)

Applied and Environmental Microbiology (ASM)

Dairy, Food and Environmental Sanitation (IAFP)

Emerging Infectious Diseases (CDC)

Food Testing and Analysis

Journal of the Association of Food and Drug Officials (AFDO)

Journal of Food Protection

Journal of Food Science

USDA/USFDA: Foodborne Illness Education Information Center (http://www.nal.usda.gov/foodborne/wais.shtml)

USFDA: Center for Food Safety and Applied Nutrition. http://www.cfsan.fda.gov/list.html

Course Analysis Questionnaire

Section A: Details of the Course

A1 The Food Protection and Safety will be an elective for the B.S. in Environmental Health Science, and the newly proposed Minor in Environmental Health Science degree and will replace the microbiology requirement in Food and Nutrition (FDNT) program.

A2 None. This course is a new course that strengthens the Environmental Health Science and the Food and Nutrition degree programs.

A3 Food Protection and Safety has been offered as BIOL 481 (Special Topics) for three fall semesters (Fall 2003, Fall 2004, and Fall 2005).

A4 Food Protection and Safety will be offered as an undergraduate course.

A5 This course may not be taken for variable credit.

A6 Other higher education institutions currently offer this course.

Examples of institutions include:

1) **University of Florida:** FOS 4204 Food Safety and Sanitation.
Credits: 2; Prereq: MCB 2000L, MCB 2000 or equivalent.
Lectures, discussions, demonstrations and field trips concerning microbial, chemical and biological safety of food, principles of sanitation for the food processing, food service and retail food industries.

2) **Cornell:** FOOD 396 Food Safety Assurance - Spring. 2 credits. Prerequisite: MICRO 290 or permission of instructor. T R 9:05-9:55. Offered alternate years. Next offered spring 2003, not offered 2004. R. B. Gravani. This course provides information on procedures to control biological, chemical, and physical hazards and assure the safety of foods. Topics include discussions on the Hazard Analysis Critical Control Point (HACCP) concept, good manufacturing practices, prerequisite programs, and the application of current technologies in reducing the risk of foodborne illnesses. Case studies and exercises are used to demonstrate and apply the key principles that are discussed.

3) **University of Wyoming:** 4900. Food Safety. 3. Issue-oriented lecture/discussion course. Includes topics such as what is safe food, what makes food unsafe and how safety of a food is determined. Presents laws and regulations on food safety. In addition to a text, area experts are invited to discuss important issues. Prerequisite: 6 credit hours of biological science. (Offered fall semester of odd-numbered years)

4) **University of New Mexico:** HNFS 415. Food Safety and Sanitation 3 cr. Biological, chemical and physical factors that affect the safety of food products. Basic aspects of food sanitation. Hazard analysis critical control points (HACCP). Laws and regulations influencing food safety. Prerequisites: BIOL 110G or BIOL 190 or BIOL 211G, and CHEM 110G or CHEM 111, or consent of instructor.

5) **Cook College:** 11:400:421. Hazard Control in Food Processing (3)
Prerequisite: 11:126:394 or 01:447:390.
Principles and application of processing controls to reduce or eliminate hazards in foods; hazard analysis and identification of critical control points; good manufacturing practices: sanitation, monitoring, and risk analysis; regulatory requirements.
11:400:422. Food Safety: Fads, Facts, and Politics (3)
Prerequisite: Open only to Cook College juniors and seniors.
The dynamic interactions of science, law, agribusiness interests, and consumer concerns. Case studies and participatory exercises to explore a variety of issues.

A7 Food Protection and Safety is a core course for program accreditation of our Environmental Health program by the National Environmental Health Science and Protection Accreditation Council. The proposed course will be cross-listed as ENVH **XXX** for the revised Environmental Health curriculum. Microbiology is a required science for FDNT majors – this course meets the same competencies.

Section B: Interdisciplinary Implications

B1 The course will be taught by one professor.

B2 The Food and Nutrition Department reviewed and assisted in the development of this course to meet their program objectives. This comprehensive course replaced General Microbiology in their program. This course covers biological, chemical and physical factors of food safety. Although some aspects of Food Protection and Safety overlap with the general microbiology course presently taught in Biology Department, and food preparation courses in the Department of Food and Nutrition, there is the need for this comprehensive course which treats all aspects of food protection and safety. This course, therefore meets a unique curricular need which is not met by other courses.

B3 Seats in this course will be made available to students in the School of Continuing Education provided they meet the prerequisites.

Section C: Implementation

C1 Faculty resources are adequate to teach this course at current level of offering.

C2 The course offering currently relies on computer generated data bases for assignments.

Other current resources:

Space - Adequate.

Equipment – Adequate (with additional support provided by Food and Nutrition Department).

Library Materials - Adequate.

C3 Resources for this course are not funded by a grant

C4 This course is offered every year.

C5 One section (depending on student enrollments in the Environmental Health and Food and Nutrition programs) of this course will be offered every year.

C6 Student enrollment for this course will be limited by laboratory space and complement.

C7 The National Environmental Health Science and Protection Accreditation Council and the Commission on Accreditation for Dietetics Education do not address enrollment limits in their guidelines for courses in food safety.

Section D: Miscellaneous

D1 This course has become a popular course for students in other majors. The course offers them comprehensive food safety information students can integrate in other courses. The applied nature of the course is the most important aspect that appeals to students.

Date: April 5, 2006

To: Dr. John S. Eck,
Dean, College of Natural Sciences and Mathematics,

From: Dr. Carl S. Luciano
Professor and Chair, Department of Biology

Subject: Food Protection and Safety Proposal

I attach this memo to the course proposal for BIOL/ENVH 270 Food Protection and Safety for two reasons.

First, I want to indicate that I offer unqualified support for the course based on its academic merits. I find the course to be well-developed and appropriate for our curriculum. Moreover it fills an important niche left void by the "retirement" of a former course BIOL 232. I believe the course serves well the needs of HHS and ENVH majors.

Second, I wanted to comment on a resource issue. The Food Protection and Safety course has been taught as a Special Topics course in fall semesters. Our practice has been to offer one lecture section of the course and one lab section (total enrollment = 20) for a total of 5 workload hours. My resource comment is that we will not be able to offer additional laboratory sections of the course with existing complement and scheduling.

I will be happy to discuss this situation with you at your convenience.

Amadu D. Ayebo

From: "Susan Dahlheimer" <ssdahl@iup.edu>
To: "Amadu D. Ayebo" <ayebo@iup.edu>
Sent: Monday, March 27, 2006 10:44 AM
Subject: Course proposal

The Department of Food and Nutrition supports Dr. Ayebo's proposal for Food Protection and Safety. We intend to change the department requirement for all department majors to recommend this course as the preferred option to the microbiology. If I can provide further information, please don't hesitate to contact me.