

**1. General Information**

1a. Submitted by the College of: MEDICINE

Date Submitted: 9/18/2013

1b. Department/Division: Graduate Center For Toxicology

1c. Contact Person

Name: Isabel Mellon

Email: mellon@uky.edu

Phone: 859-257-6253

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

1d. Requested Effective Date: Semester following approval

1e. Should this course be a UK Core Course? No

**2. Designation and Description of Proposed Course**

2a. Will this course also be offered through Distance Learning?: No

2b. Prefix and Number: TOX 409G

2c. Full Title: Toxicology and Human Health

2d. Transcript Title:

2e. Cross-listing:

2f. Meeting Patterns

LECTURE: 3

2g. Grading System: Letter (A, B, C, etc.)

2h. Number of credit hours: 3

2i. Is this course repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester?

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OFFICE OF THE  
SENATE COUNCIL

2j. Course Description for Bulletin: Principles of Toxicology is a course for students in the biological and health sciences and others interested in understanding the major principles of toxicology and the consequences of toxins on human health and the environment. The course describes how different organs in the body respond to and biochemically metabolize toxins, the wide range of toxic agents present in the environment from pesticides to radiation, how the genome is effected by exposures, and special problems in toxicology that effect the world.

2k. Prerequisites, if any: CHE 105 and 107 or equivalent general chemistry, BIO 148 and 152 or equivalent introductory biology, CHE 230 and 232 or equivalent organic chemistry.

2l. Supplementary Teaching Component:

3. Will this course taught off campus? No

If YES, enter the off campus address:

4. Frequency of Course Offering: Spring,

Will the course be offered every year?: Yes

If No, explain:

5. Are facilities and personnel necessary for the proposed new course available?: Yes

If No, explain:

6. What enrollment (per section per semester) may reasonably be expected?: 10

7. Anticipated Student Demand

Will this course serve students primarily within the degree program?: No

Will it be of interest to a significant number of students outside the degree pgm?: Yes

If Yes, explain: This new course will complement but not overlap existing courses in Biology, Chemistry and Agriculture. It should serve a unique niche in developing interest and preparing students for careers or advanced degrees in Toxicology obtained at UK or other institutions.

8. Check the category most applicable to this course: Traditional – Offered in Corresponding Departments at Universities Elsewhere,

If No, explain:

9. Course Relationship to Program(s).

a. Is this course part of a proposed new program?: No

If YES, name the proposed new program:

b. Will this course be a new requirement for ANY program?: No

If YES, list affected programs:

10. Information to be Placed on Syllabus.

a. Is the course 400G or 500?: Yes

b. The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from **10.a** above) are attached: Yes

## Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1. How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2. How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3. How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4. Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5. How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6. How do course requirements ensure that students make appropriate use of learning resources?

7. Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8. How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (<http://www.uky.edu/UKIT/>)?

9. Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10. Does the syllabus contain all the required components? NO

11. I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

SIGNATURE|MARYV|Mary V Iwamoto|TOX 409G NEW Dept Review|20130919

SIGNATURE|MRWH224|Melissa R Wilkeson|TOX 409G NEW College Review|20131113

SIGNATURE|JDLIND2|Jim D Lindsay|TOX 409G NEW HCCC Review|20140121

SIGNATURE|ZNNIKO0|Roshan N Nikou|TOX 409G NEW Graduate Council Review|20140304

SIGNATURE|JMETT2|Joanie Ett-Mims|TOX 409G NEW Undergrad Council Review|20141107

Courses	Request Tracking
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### New Course Form

<https://myuk.uky.edu/sap/bc/soap/rfc?services=>

Generate F

Open in full window to print or save

Attachments:

Upload File

Browse...

ID	Attachment
Delete 3569	TOX 409G request of re-review by undergraduate cou
Delete 3990	Tox 409G syllabus resubmitted Nov 2014.pdf

First 1 Last

Select saved project to retrieve... Get New

(\*denotes required fields)

**1. General Information**

a. \* Submitted by the College of:  Submission Date:

b. \* Department/Division:

c. \* Contact Person Name:  Email:  Phone:   
 \* Responsible Faculty ID (if different from Contact) \_\_\_\_\_ Email: \_\_\_\_\_ Phone: \_\_\_\_\_

d. \* Requested Effective Date:  Semester following approval OR  Specific Term/Year <sup>1</sup> \_\_\_\_\_

e. Should this course be a UK Core Course?  Yes  No  
 If YES, check the areas that apply:

Inquiry - Arts & Creativity  Composition & Communications - II  
 Inquiry - Humanities  Quantitative Foundations  
 Inquiry - Nat/Math/Phys Sci  Statistical Inferential Reasoning  
 Inquiry - Social Sciences  U.S. Citizenship, Community, Diversity  
 Composition & Communications - I  Global Dynamics

**2. Designation and Description of Proposed Course.**

a. \* Will this course also be offered through Distance Learning?  Yes <sup>4</sup>  No

b. \* Prefix and Number:

c. \* Full Title:

d. Transcript Title (if full title is more than 40 characters): \_\_\_\_\_

e. To be Cross-Listed <sup>2</sup> with (Prefix and Number): \_\_\_\_\_

f. \* Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours<sup>3</sup> for each meeting pattern type.

<input type="text" value="3"/> Lecture	<input type="text"/> Laboratory <sup>1</sup>	<input type="text"/> Recitation	<input type="text"/> Discussion
<input type="text"/> Indep. Study	<input type="text"/> Clinical	<input type="text"/> Colloquium	<input type="text"/> Practicum
<input type="text"/> Research	<input type="text"/> Residency	<input type="text"/> Seminar	<input type="text"/> Studio
<input type="text"/> Other	If Other, Please explain: _____		

g. \* Identify a grading system:  
 Letter (A, B, C, etc.)  
 Pass/Fail  
 Medicine Numeric Grade (Non-medical students will receive a letter grade)  
 Graduate School Grade Scale

h. \* Number of credits:

i. \* Is this course repeatable for additional credit?  Yes  No  
 If YES: Maximum number of credit hours: \_\_\_\_\_  
 If YES: Will this course allow multiple registrations during the same semester?  Yes  No

## j. \* Course Description for Bulletin:

Principles of Toxicology is a course for students in the biological and health sciences and others interested in understanding the major principles of toxicology and the consequences of toxins on human health and the environment. The course describes how different organs in the body respond to and biochemically metabolize toxins, the wide range of toxic agents present in the environment from pesticides to radiation, how the genome is effected by exposures, and special problems in toxicology that effect the world.

## k. Prerequisites, if any:

CHE 105 and 107 or equivalent general chemistry, BIO 148 and 152 or equivalent introductory biology, CHE 230 and 232 or equivalent organic chemistry.

l. Supplementary teaching component, if any:  Community-Based Experience  Service Learning  Both3. \* Will this course be taught off campus?  Yes  No

If YES, enter the off campus address: \_\_\_\_\_

## 4. Frequency of Course Offering.

a. \* Course will be offered (check all that apply):  Fall  Spring  Summer  Winter

b. \* Will the course be offered every year?  Yes  No

If No, explain: \_\_\_\_\_

5. \* Are facilities and personnel necessary for the proposed new course available?  Yes  No

If No, explain: \_\_\_\_\_

## 6. \* What enrollment (per section per semester) may reasonably be expected? 10

## 7. Anticipated Student Demand.

a. \* Will this course serve students primarily within the degree program?  Yes  No

b. \* Will it be of interest to a significant number of students outside the degree pgm?  Yes  No

If YES, explain: \_\_\_\_\_

This new course will complement but not overlap existing courses in Biology, Chemistry and Agriculture. It should serve a unique niche in developing interest and preparing students for careers or advanced degrees in Toxicology

## 8. \* Check the category most applicable to this course:

Traditional – Offered in Corresponding Departments at Universities Elsewhere

Relatively New – Now Being Widely Established

Not Yet Found in Many (or Any) Other Universities

## 9. Course Relationship to Program(s).

a. \* Is this course part of a proposed new program?  Yes  No

If YES, name the proposed new program: \_\_\_\_\_

b. \* Will this course be a new requirement <sup>§</sup> for ANY program?  Yes  No

If YES <sup>§</sup>, list affected programs: \_\_\_\_\_

## 10. Information to be Placed on Syllabus.

a. \* is the course 400G or 500?  Yes  No

If YES, the *differentiation for undergraduate and graduate students must be included* in the information required in 10.b. You must include: (i) ident additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See SR

b.  \* The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if appl 10.a above) are attached.

<sup>§</sup> Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.

<sup>¶</sup> The chair of the cross-listing department must sign off on the Signature Routing Log.

## MEMORANDUM

To: Dr. Karen Badger, Chair, Undergraduate Council

From: Dr. Isabel Mellon, Graduate Center for Toxicology

Re: TOX 409G Toxicology and Human Health, Request for Re-review of Course Proposal

Date: August 18, 2014

Below is my response to questions raised regarding overlap between the proposed new course TOX 409G (Toxicology and Human Health) and the existing course TOX/BIO 560 (Environmental Physiology and Toxicology).

- TOX 409G and TOX/BIO 560 will be courses with an entirely different focus and different target student populations. While some of the overall principles related to general toxicology are similar, the applications of toxicological processes to specific endpoints are vastly different.
- TOX/BIO 560 ENVIRONMENTAL PHYSIOLOGY AND TOXICOLOGY is a 4 credit course that is focused on ecotoxicology and environmental chemistry and overall does not address human health.
- TOX 409G TOXICOLOGY AND HUMAN HEALTH is a 3 credit course that almost entirely addresses how toxic agents affect humans and human health. It does not focus on ecology or impacts of toxicants on the environment.
- TOX 409G will be mainly targeted to undergraduate students in the health sciences across campus who may have interests in toxicology and human health. The 409G status of the course will allow undergraduates to engage in an upper level course and they will be evaluated by differential criteria compared with graduate students enrolled in the course. This also differs from TOX/BIO 560.
- TOX 409G will not fulfill any of the curriculum requirements for the masters or doctoral graduate programs offered by The Graduate Center for Toxicology while TOX/BIO 560 will fulfill the requirement for electives in both the Toxicology PhD and MS degrees.
- I have discussed potential overlap between the two courses with Jason Unrine who will be the course director for TOX/BIO 560 and he agreed that there is very little overlap between the two courses. We will continue discussions to ensure that significant overlap does not develop between the two courses in the future should TOX 409G be approved.

TOXICOLOGY AND HUMAN HEALTH  
TOX 409G  
SPRING 2014

**Instructor/Course Director**

Isabel Mellon  
Graduate Center for Toxicology  
Room 306 Health Science Research Building  
Office phone: 859-257-6253  
E-mail: mellon@uky.edu

**Office hours**

Students can post questions and comments on the course's Discussion page on Blackboard. Students may also contact the course director directly by e-mail and include TOX 409G in the subject line to pose questions or to set up office appointments.

**Blackboard**

Students must be able to access Blackboard (<http://uky.edu/blackboard> or <http://myUK.uky.edu>) for lectures, class questions, and comments, reading and writing assignments, grades, and announcements. Students may also receive course materials and announcements via their UK e-mail account.

Students should contact UK Customer Service Center for questions or problems with Blackboard: phone 218-4357 (218-HELP) or send email to [helpdesk@uky.edu](mailto:helpdesk@uky.edu). Students can also find quick answers by clicking the *Help* link at the top of any Blackboard screen or checking the TASC website at (<http://www.uky.edu/TASC/index.php> )

**Scheduled meeting days, Time and Place: TBD meeting days, time and place**

**Course description**

Principles of Toxicology is a course for students in the biological and health sciences and others interested in understanding the major principles of toxicology and the consequences of toxins on human health and the environment. The course describes how different organs in the body respond to and biochemically metabolize toxins, the wide range of toxic agents present in the environment from pesticides to radiation, how the genome is affected by exposures, and special problems in toxicology that affect the world.

**Student learning outcomes**

At the end of the course, students will:

- (1) Understand basic mechanisms of toxicology.
- (2) Describe major classes of toxins and how they impact specific organs in the body.
- (3) Understand how basic principles of toxicology are applied to evaluate risks to human health and to the environment.
- (4) Understand and critically analyze scientific literature in the field of toxicology.
- (5) Understand special problems in toxicology that affect the world.

**Course pre-requisites**

CHE 105 and 107 or equivalent general chemistry, BIO 148 and 152 or equivalent introductory biology, CHE 230 and 232 or equivalent organic chemistry.

**Textbook**

Casarett and Doull's Essentials of Toxicology, 2<sup>nd</sup> Edition (2010, McGraw-Hill). Additional course reading materials will be posted on Blackboard.

**Course activities and assignments**

This course will rely on lectures and reading assignments (from the textbook, other information available for download from Blackboard or from the UK Library). The lectures will introduce key topics in toxicology and the reading assignments will expand or provide different perspectives on the subjects. Reading assignments will be taken from books, reviews, primary literature or other online resources.



**Undergraduate Students** can accumulate up to **500** points from 4 exams and 4 writing assignments. **Graduate Students** can accumulate up to **550** points from 4 exams and 5 writing assignments. For all students, points will be awarded only for material turned in on time.

**Exams: (100 points each, 400 points total):** 4 exams will be given during the regular class time. Three will be given during the regular semester and the 4<sup>th</sup> during finals week.

**Writing assignments (4 assignments that are 25 points each for all students, in addition graduate students will have an additional 50 point assignment):** Each 25 point assignment will be a short essay (1-2 pages not counting cover page or references, 1" margins all around, single-spaced, font: Times 12 or Arial 11) that present the student's perspective on a topic chosen by the instructor. The student will have 1 week to complete each assignment. The logical discussion of the assigned topic will count for 20 points. Spelling, grammar and presentation will count for the remaining 5 points. The additional assignment for graduate students will be an in depth review of a journal article or articles assigned by the course director.

### Grading

Combined instruction of undergraduate and post-baccalaureate/graduate students in 400G-level courses must be structured to ensure appropriate attention to both groups and a corresponding differentiation in expectations. Thus, the final **letter grades** for this course will be calculated from total points accumulated according to the scale below:

	<u>Undergraduate</u>	<u>Graduate</u>
<b>A</b>	≥ 440	≥ 500
<b>B</b>	≥ 390	≥ 450
<b>C</b>	≥ 340	≥ 400
<b>D</b>	≥ 300	----
<b>E</b>	< 300	< 400

Mid-term grades will be posted in myUK by the deadline set in the Academic Calendar.

**Graduate students:** D grades may not be awarded to graduate students.

The course evaluation will be available on Blackboard the week before finals. 5 points will be added to the student's total if they complete the course evaluation before 5pm the last Friday of classes (week before final exams.) There will be no other score adjustment or extra credit work.

**Assignment Due Dates:** TBD Assignment due dates

**Examination Dates and the date, time and location of final exam:** TBD Examination dates, time and location

### General course policies

- 1. Attendance Policy.** Attendance is required. Each missed class will result in a loss of 3 points unless an absence is excused.
- 2. Submission of Assignments**  
Written assignments will be submitted to the instructor at the beginning of the assigned class meeting. For excused absences, assignments will be submitted by email prior to the assigned class meeting. Materials received past their deadline will receive zero points.
- 3. Return of Graded Materials**  
Graded materials (exams and assignments) will be returned to the student in class or available for pick up in Dr. Mellon's office. In accordance with University procedures, all graded materials will be held for 1 semester after the end of the course.

#### 4. Questions Regarding Scores or Grades

Exams and assignment scores will be posted on Blackboard as soon as they are available. If a student has a concern regarding their posted score/grade, they have 1 week (7 days) from the day the scores are posted to contest the score. After 1 week, a change in the score will not be considered. It is the student's responsibility to check their scores and follow-up in a timely manner. If a student feels there was an error in grading an exam or assignment, they must submit a request by e-mail, detailing the perceived error and why their answer(s) should receive additional credit.

#### 5. Rescheduling Assignments

Students with documented excusable absences are allowed to make up missed assignments or exams according to these guidelines:

For excused non-emergencies, students must notify Dr. Mellon by e-mail at least 1 week (7 days) before.

For emergency-related absences, students must notify Dr. Mellon by e-mail as soon as possible. Acceptable documentation must be submitted immediately after a missed assignment/exam. Excused missed work must be completed within 1 week (7 days) of the original due date, unless other arrangements have been made with me.

For excused and documented absences, this course adheres to the University policy as follows:

- A. Illness of the student or serious illness of a member of the student's immediate family. The instructor shall have the right to request appropriate verification.
- B. The death of a member of the student's immediate family. The instructor shall have the right to request appropriate verification.
- C. Trips for members of student organizations sponsored by an academic unit, trips for University classes, and trips for participation in intercollegiate athletic events. Instructors may request formal notification from appropriate university personnel to document the student's participation in such trips.
- D. Major religious holidays. Students are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day for adding a class.
- E. Any other circumstances for which the instructor finds reasonable cause for nonattendance.

Failure to follow this policy on the student's part will result in zero points for the missed assignment or exam.

#### 6. Academic Integrity

Students shall not plagiarize, cheat, or falsify or misuse academic records. All students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed. When in doubt, ask Dr. Mellon who will be happy to provide further guidance on what constitutes fair use of published material (or not.)

Plagiarism and cheating are serious breaches of academic conduct. You are advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website:

<http://www.uky.edu/Ombud>. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of *Student Rights and Responsibilities* (available online)

<http://www.uky.edu/StudentAffairs/Code/part2.html>) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it is a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work that a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student and the student alone. When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas that are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

#### **7. Class Behavior, Decorum and Civility**

Students are expected to maintain a level of dignity and respect towards faculty, staff, and fellow students. Students are expected to value differences among all members of our academic community. Students have the right to take reasoned exception and to voice opinions contrary to those offered by the instructor and/or other students (S.R. 6.1.2). Equally, a faculty member has the right -- and the responsibility -- to ensure that all academic discourse occurs in a context characterized by respect and civility. Acceptable decorum and civility does not include attacks of a personal nature or statements denigrating another on the basis of race, sex, religion, sexual orientation, age, national/regional origin.

#### **8. Disabilities and medical conditions**

For a documented disability that requires academic accommodation, please contact Disability Resource Center so proper arrangements can be made. To receive special accommodations in this course you must provide a Letter of Accommodation from the Disability Resource Center (contact J. Karnes, Director, Room 2, Alumni Gym, (V/TDD) 257-2754; [jkarbes@email.uky.edu](mailto:jkarbes@email.uky.edu)) for coordination of the campus disability services available to you.

## COURSE OUTLINE

	<b>Date</b>	<b>Topic</b>
1	Jan 15	Introduction
2	Jan 17	History of Toxicology
	Jan 20	MLK Day
3	Jan 22	General Principles of Toxicology
4	Jan 24	Mechanisms of Toxicology
5	Jan 27	Mechanisms of Toxicology
6	Jan 29	Risk Assessment
7	Jan 31	Absorption, Distribution and Excretion
8	Feb 3	Biotransformation
9	Feb 5	Chemical Carcinogenesis
10	Feb 7	Discussion 1 Special Problems in Toxicology
11	Feb 10	Exam 1
12	Feb 12	Genetic Toxicology
13	Feb 14	Toxicogenomics
14	Feb 17	Developmental Toxicology
15	Feb 19	Organ Toxicity – Blood and Immune System
16	Feb 21	Organ Toxicity – Liver
17	Feb 24	Organ Toxicity – Kidney
18	Feb 26	Organ Toxicity – Respiratory System
19	Feb 28	Organ Toxicity – Nervous System
20	Mar 3	Discussion 2 Special Problems in Toxicology
21	Mar 5	Exam 2
22	Mar 7	Organ Toxicity – Heart
23	Mar 10	Organ Toxicity – Skin
24	Mar 12	Organ Toxicity – Reproductive System
25	Mar 14	Organ Toxicity – Endocrine System
	Mar 17-21	Spring Break
26	Mar 24	Toxic Agents - Pesticides
27	Mar 26	Toxic Agents - Metals
28	Mar 28	Toxic Agents – Solvents and Vapors
29	Mar 31	Toxic Agents - Radiation
30	Apr 2	Discussion 3 Special Problems in Toxicology
31	Apr 4	Exam 3
32	Apr 7	Toxic Agents – Animal Venoms and Poisons
33	Apr 9	Toxic Agents – Plants, Fungi and Algae
34	Apr 11	Toxic Agents – Air
35	Apr 14	Ecotoxicology
36	Apr 16	Food Toxicology

37	Apr '18	Analytical/Forensic Toxicology
38	Apr 21	Clinical Toxicology
39	Apr 23	Occupational Toxicology
40	Apr 25	Discussion 4 Special Problems in Toxicology
	Final Exam	Exam 4