

RECEIVED

APR 10 2014

OFFICE OF THE
SENATE COUNCIL**Course Information**

Date Submitted: 1/20/2014

Current Prefix and Number: TOX - Toxicology , TOX 680 MOLECULAR MECHANISMS IN TOXICOLOGY

Other Course:

Proposed Prefix and Number: TOX 680

What type of change is being proposed?

Major Change

Should this course be a UK Core Course? No

1. General Information

a. Submitted by the College of: MEDICINE

b. Department/Division: Graduate Center For Toxicology

c. Is there a change in 'ownership' of the course? No

If YES, what college/department will offer the course instead: Select...

e. Contact Person

Name: David Orren

Email: dkorre2@uky.edu

Phone: 323-3612

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

f. Requested Effective Date

Semester Following Approval: Yes OR Effective Semester:

2. Designation and Description of Proposed Course

a. Current Distance Learning (DL) Status: N/A

b. Full Title: MOLECULAR MECHANISMS IN TOXICOLOGY

Proposed Title: MOLECULAR TOXICOLOGY AND CARCINOGENESIS

c. Current Transcript Title: MOLECULAR MECHANISMS IN TOXICOLOGY

Proposed Transcript Title: MOLECULAR TOXICOLOGY AND CARCINOGENESIS

d. Current Cross-listing: none

Proposed – ADD Cross-listing :

Proposed – REMOVE Cross-listing:

e. Current Meeting Patterns

LECTURE: 5.0

Proposed Meeting Patterns

LECTURE: 3.0

f. Current Grading System: Graduate School Grade Scale

Proposed Grading System: *Graduate School Grade Scale*

g. Current number of credit hours: 5

Proposed number of credit hours: 3

h. Currently, is this course repeatable for additional credit? No

Proposed to be repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester? No

2i. Current Course Description for Bulletin: An intensive examination of the chemistry and action of substances which adversely affect living systems, and consideration of means of lessening their impact on man and the environment.

Proposed Course Description for Bulletin: An intensive examination of 1) the key molecular and cellular mechanisms related to toxicity and carcinogenesis, and 2) the established relationships between exposures to toxicants and development of cancer and other human diseases.

2j. Current Prerequisites, if any: Prereq: TOX 509 or consent of Director of Graduate Studies.

Proposed Prerequisites, if any: Prereq: TOX509, TOX663 or consent of Director of Graduate Studies

2k. Current Supplementary Teaching Component:

Proposed Supplementary Teaching Component: No Change

3. Currently, is this course taught off campus? No

Proposed to be taught off campus? No

If YES, enter the off campus address:

4. Are significant changes in content/student learning outcomes of the course being proposed? Yes

If YES, explain and offer brief rationale: The course content is being reduced from 5 to 3 credit hours. Some of the material currently in the 5 credit hour course is being transferred to other courses (TOX663). This course change is part of a re-organization of the requirements for the Ph.D. degree in the program, due to addition of other required courses to the Ph.D. curriculum. These changes are all part of the administrative change of the Graduate Center for Toxicology to the Department of Toxicology and Cancer Biology; this administrative action is occurring concurrently with this proposed course change.

5a. Are there other depts. and/or pgms that could be affected by the proposed change? Yes

If YES, identify the depts. and/or pgms: Department of Toxicology and Cancer Biology This course change is part of a re-organization of the requirements for the Ph.D. degree in the program, due to addition of other required courses to the Ph.D. curriculum. These changes are all part of the administrative change of the Graduate Center for Toxicology to the Department of Toxicology and Cancer Biology; this administrative action is occurring concurrently with this proposed course change.

5b. Will modifying this course result in a new requirement of ANY program? Yes

If YES, list the program(s) here: Graduate Center for Toxicology Department of Toxicology and Cancer Biology (formation from Graduate Center for Toxicology currently in process)

6. Check box if changed to 400G or 500: No

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 680 CHANGE Dept Review|20140120

SIGNATURE|MRWH224|Melissa R Wilkeson|TOX 680 CHANGE College Review|20140130

SIGNATURE|MARYV|Mary V Iwamoto|TOX 680 ZCOURSE_CHANGE Approval Returned to Dept|20140131

SIGNATURE|MRWH224|Melissa R Wilkeson|TOX 680 CHANGE College Review|20140317

SIGNATURE|ZNNIKO0|Roshan N Nikou|TOX 680 CHANGE Graduate Council Review|20140410

Courses	Request Tracking
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Course Change Form

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

[Open in full window to print or save](#)

Generate R

Attachments:

Upload File

Browse...

ID	Attachment
Delete 3110	TOX680 reorg final 2-19-14.pdf

First 1 Last

Select saved project to retrieve... Get New

NOTE: Start form entry by choosing the Current Prefix and Number (*denotes required fields)

Current Prefix and Number:		TOX - Toxicology TOX 680 MOLECULAR MECHANISMS IN TOXICOLOGY	Proposed Prefix & Number: (example: PHY 401G)	TOX 680
* What type of change is being proposed?		<input checked="" type="checkbox"/> Major Change <input type="checkbox"/> Major - Add Distance Learning <input type="checkbox"/> Minor - change in number within the same hundred series, except 799 is the same "hundred series" <input type="checkbox"/> Minor - editorial change in course title or description which does change in content or emphasis <input type="checkbox"/> Minor - a change in prerequisite(s) which does not imply a change in course content or emphasis, or which is made necessary by the elimination or significant alteration of the prerequisite(s) <input type="checkbox"/> Minor - a cross listing of a course as described above		
Should this course be a UK Core Course? <input type="radio"/> Yes <input checked="" type="radio"/> No				
If YES, check the areas that apply:				
<input type="checkbox"/> Inquiry - Arts & Creativity <input type="checkbox"/> Composition & Communications - II <input type="checkbox"/> Inquiry - Humanities <input type="checkbox"/> Quantitative Foundations <input type="checkbox"/> Inquiry - Nat/Math/Phys Sci <input type="checkbox"/> Statistical Inferential Reasoning <input type="checkbox"/> Inquiry - Social Sciences <input type="checkbox"/> U.S. Citizenship, Community, Diversity <input type="checkbox"/> Composition & Communications - I <input type="checkbox"/> Global Dynamics				
1. General Information				
a. Submitted by the College of:		MEDICINE	Submission Date: 1/20/2014	
b. Department/Division:		Graduate Center For Toxicology		
c.* Is there a change in "ownership" of the course?				
<input checked="" type="radio"/> Yes <input type="radio"/> No If YES, what college/department will offer the course instead? Select...				
e.*				
* Contact Person Name:		David Orren	Email: dkorre2@uky.edu	Phone: 323-3612
* Responsible Faculty ID (if different from Contact)			Email:	Phone:
f.* Requested Effective Date:		<input checked="" type="checkbox"/> Semester Following Approval	OR	Specific Term: 2
2. Designation and Description of Proposed Course.				
a. Current Distance Learning(DL) Status:		<input checked="" type="radio"/> N/A <input type="radio"/> Already approved for DL* <input type="radio"/> Please Add <input type="radio"/> Please Drop		
*If already approved for DL, the Distance Learning Form must also be submitted unless the department affirms (by checking this box) that the proposed change affect DL delivery.				
b. Full Title:		MOLECULAR MECHANISMS IN TOXICOLOGY	Proposed Title: *	MOLECULAR TOXICOLOGY AND CARCINOGENESIS
c. Current Transcript Title (if full title is more than 40 characters):			MOLECULAR MECHANISMS IN TOXICOLOGY	

c. Proposed Transcript Title (if full title is more than 40 characters):		MOLECULAR TOXICOLOGY AND CARCINOGENESIS			
d. Current Cross-listing:	<input checked="" type="checkbox"/> N/A	OR	Currently ² Cross-listed with (Prefix & Number):	none	
Proposed – ADD ³ Cross-listing (Prefix & Number):					
Proposed – REMOVE ^{3,4} Cross-listing (Prefix & Number):					
e. Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours ⁵ for each meeting pattern					
Current:	Lecture 5.0	Laboratory ²	Recitation	Discussion	Indep. Study
	Clinical	Colloquium	Practicum	Research	Residency
	Seminar	Studio	Other Please explain:		
Proposed: *	Lecture 3.0	Laboratory ²	Recitation	Discussion	Indep. Study
	Clinical	Colloquium	Practicum	Research	Residency
	Seminar	Studio	Other Please explain:		
f. Current Grading System:	Graduate School Grade Scale				
Proposed Grading System:*	<input type="radio"/> Letter (A, B, C, etc.) <input type="radio"/> Pass/Fail <input type="radio"/> Medicine Numeric Grade (Non-medical students will receive a letter grade) <input checked="" type="radio"/> Graduate School Grade Scale				
g. Current number of credit hours:	5	Proposed number of credit hours:*	3		
h.* Currently, is this course repeatable for additional credit?					<input type="radio"/> Yes <input checked="" type="radio"/> No
* Proposed to be repeatable for additional credit?					<input type="radio"/> Yes <input checked="" type="radio"/> No
If YES:	Maximum number of credit hours:				
If YES:	Will this course allow multiple registrations during the same semester?				<input type="radio"/> Yes <input checked="" type="radio"/> No
i. Current Course Description for Bulletin:	An intensive examination of the chemistry and action of substances which adversely affect living systems, and consideration of means of lessening their impact on man and the environment.				
* Proposed Course Description for Bulletin:	An intensive examination of 1) the key molecular and cellular mechanisms related to toxicity and carcinogenesis, and 2) the established relationships between exposures to toxicants and development of cancer and other human diseases.				
j. Current Prerequisites, if any:	Prereq: TOX 509 or consent of Director of Graduate Studies.				
* Proposed Prerequisites, if any:	Prereq: TOX509, TOX663 or consent of Director of Graduate Studies				

k.	Current Supplementary Teaching Component, if any:	<input type="radio"/> Community-Based Experience <input type="radio"/> Service Learning <input type="radio"/> Both
	Proposed Supplementary Teaching Component:	<input type="radio"/> Community-Based Experience <input type="radio"/> Service Learning <input type="radio"/> Both <input checked="" type="radio"/> No Change
3.	Currently, is this course taught off campus?	<input type="radio"/> Yes <input checked="" type="radio"/> No
*	Proposed to be taught off campus?	<input type="radio"/> Yes <input checked="" type="radio"/> No
	If YES, enter the off campus address:	
4.*	Are significant changes in content/student learning outcomes of the course being proposed?	<input type="radio"/> Yes <input checked="" type="radio"/> No
	If YES, explain and offer brief rationale:	
	The course content is being reduced from 5 to 3 credit hours. Some of the material currently in the 5 credit hour course is being transferred to other courses (TOX663). This course change is part of a re-organization of the requirements for the Ph.D. degree in the program, due to addition of other required courses to the Ph.D. curriculum. These changes are all part of the administrative change of the Graduate Center for Toxicology to the Department of Toxicology and Cancer Biology; this administrative action is occurring concurrently with this proposed course change	
5.	Course Relationship to Program(s).	
a.*	Are there other depts and/or pgms that could be affected by the proposed change?	<input type="radio"/> Yes <input checked="" type="radio"/> No
	If YES, identify the depts. and/or pgms:	
	Department of Toxicology and Cancer Biology This course change is part of a re-organization of the requirements for the Ph.D. degree in the program, due to addition of other required courses to the Ph.D. curriculum. These changes are all part of the administrative change of the Graduate Center for Toxicology to the Department of Toxicology and Cancer Biology; this administrative action is occurring concurrently with this proposed course change.	
b.*	Will modifying this course result in a new requirement ² for ANY program?	<input type="radio"/> Yes <input checked="" type="radio"/> No
	If YES ² , list the program(s) here:	
	Graduate Center for Toxicology Department of Toxicology and Cancer Biology (formation from Graduate Center for Toxicology currently in process)	
6.	Information to be Placed on Syllabus.	
a.	<input type="checkbox"/> Check box if <u>changed to 400G or 500.</u>	If <u>changed to 400G- or 500-level course</u> you must send in a syllabus and <i>you must include the differentiation between under and graduate students by: (i) requiring additional assignments by the graduate students; and/or (ii) establishing different gra in the course for graduate students. (See SR 3.1.4.)</i>

¹See comment description regarding minor course change. *Minor changes are sent directly from dean's office to Senate Council Chair.* If Chair deems the change as "not minor," the form will be appropriate academic Council for normal processing and contact person is informed.
²Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
³Signature of the chair of the cross-listing department is required on the Signature Routing Log.
⁴Removing a cross-listing does not drop the other course – it merely unlinks the two courses.
⁵Generally, undergrad courses are developed such that one semester hr of credit represents 1 hr of classroom meeting per wk for a semester, exclusive of any lab meeting. Lab meeting generally two hrs per wk for a semester for 1 credit hour. (See SR 5.2.1.)
⁶You must also submit the Distance Learning Form in order for the course to be considered for DL delivery.
⁷In order to change a program, a program change form must also be submitted.

Submit as New Proposal Save Current Changes

TOX 680
Molecular Toxicology and Carcinogenesis
Spring 2015

Course Director: Dr. Hsin-Sheng Yang
Office Address: 348 Bosomworth Health Sciences Research Bldg.
Email: hyang3@uky.edu
Office Phone: 323-6684
Office Hours:

Curriculum Consultant: Dr. David Orren
Office Address: 356 Bosomworth Health Sciences Research Bldg.
Email: dkorre2@uky.edu
Office Phone: 323-3612

Administrative Support: Joyce Welch
Office Address: 306 Bosomworth Health Sciences Research Bldg.
Email: jwelch@uky.edu
Office Phone: 257-3760

Course Description: As a required course for the Ph.D. degree in Toxicology and Cancer Biology, the major goals of TOX680 are to provide a solid knowledge base as to: 1) the key molecular and cellular mechanisms related to toxicity and carcinogenesis, and 2) the established relationships between exposures to toxicants and development of cancer and other human diseases.

Prerequisites: TOX509 or TOX663 or by permission of course director.

Student Learning Objectives: Upon completion of the course, students are expected to have a firm grasp of specific molecular and cellular mechanisms that contribute to toxicity and carcinogenesis as well as pathways that counteract these effects. Students will also be expected to know whether and how specific toxic insults contribute to certain human diseases. Presentations will need to demonstrate the student's ability to read and interpret scientific literature and, in a clear manner using visual aids, verbally explain research therein to their peers and the course director.

Required Materials: There is no assigned text for this course. Course materials will be posted on Blackboard and/or provided as handouts or electronic files to students.

Description of Course Activities and Assignments: Course is divided into 4 subsections based on content. Fifty minute sessions within each subsection will be didactic lectures, with an exam following each subsection to be held outside the normal meeting time. The exam following the last subsection will be held during the scheduled Final Exam period. In addition, each registered student will be required to give one oral presentation and lead discussion on scientific article(s) related to topics covered within the course. The length and general format of presentations (not more than 50 min each) will be announced at the beginning of each semester once the class size (generally from 4-8 students) is determined.

Course Assignments:

4 exams, 10 points per lecture for each exam (all lectures count equally), 80% of total grade
1 oral presentation at 15% of total grade

Exams and Course Grading: Final letter grades will be based on exams (80%), student presentations (15%) and attendance (5%). Exams will be in the form of a closed book test and given following each section, at a scheduled time outside of the normal class meeting time. The dates, times and locations will be provided at the start of the semester in the lecture schedule. Each lecture will be tested and equally weighed (contributing 10 points within each exam) in the final course grade. All written exams will be in the form of closed book test. Grading is according to the Graduate School System (A, B, C, E), with 70% the minimum score for passing.

Course Policies:

Submission of Assignments: No written assignments are required for this course. Oral presentations will be given on dates assigned during the first week of the semester; students should contact the course director as soon as possible, if rescheduling caused by an excused absence (see below) becomes necessary. Exams must be handed in at the end of scheduled exam periods.

Attendance: Attendance to the class is mandatory and is critical for success in this course. The first unexcused absence will result in a warning. For the second and each subsequent unexcused absence, you will lose 0.5% of your final grade, which may accumulate up to 5% of your final course grade. Unexcused late arrival for class is not allowed; nor is unexcused early departure from class. Arriving 10 minutes after the class starts will be considered a 50% attendance for the lecture and will subject to the attendance point deduction accordingly.

Excused Absences: Officially recognized reasons for nonattendance (excused absence) may be found in the UK Senate Rules (SR 5.2.4.2), a copy of which is listed below.

"5.2.4.2 Excused Absences: (US: 11/11/85; 2/9/87) The following are defined as excused absences:

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.

*Children of students are considered members of the immediate family (RC: 11/9/94)

C. Trips for members of student organizations sponsored by an academic unit, trips for University classes, and trips for participation in intercollegiate athletic events. When feasible, the student must notify the instructor prior to the occurrence of such absences, but in no case shall such notification occur more than one week after the absence. 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 which the instructor finds reasonable cause for nonattendance."

Students need to notify the professor of absences prior to the class period to be missed when possible.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

Per University policy, students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused).

Verification of Absences:

Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Academic Integrity: Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. 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.

Plagiarism and cheating are serious breaches of academic conduct. Each student is 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 be 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 which 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 which are so generally and freely circulated as to be a part of the public domain (Senate Rules Section 6.3.1).

Please note: Any assignment turned in may be submitted to an electronic database to check for plagiarism.

Accommodations due to disability:

If a student has a documented disability that requires academic accommodations, please contact the course director as soon as possible. In order to receive accommodations in this course, the student must provide the course director with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address: jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Course Schedule

Section 1. Oxidative Stress

- | | |
|---|-----------|
| 1. Principles of Oxidative Stress | Shi |
| 2. Detection of Oxidative Stress | Shi |
| 3. Cellular Antioxidant Defense Mechanisms | Wei |
| 4. Redox Regulation | St. Clair |
| 5. Mitochondria and Cancer | Izumi |
| 6. Role of oxidative stress in toxicity and carcinogenicity | Shi |
| 7. Metals and Human Disease I | Zhang |
| 8. Metals and Human Disease II | Zhang |
| 9. Disease prevention by oxidative stress prevention | Shi |
| 10. Nitrosative Stress | TBA |
| 11. Student Presentations of Relevant Literature | |

SECTION 1 EXAM (to be scheduled outside of regular course meeting times)

Section 2. Genotoxicology

12. DNA Damage	Orren
13. DNA Damage	Orren
14. Base Excision Repair	Izumi
15. Nucleotide Excision Repair	Mellon
16. Mismatch Repair	Gu
17. Single- and Double-strand Break Repair	Orren
18. Recombinational Repair and Crosslink Repair	Orren
19. Measurement of Genotoxicity	Wang
20. DNA Damage-induced Mutagenesis	Wang
21. Epigenetics and Toxicology	Li
22. Student Presentations of Relevant Literature	

SECTION 2 EXAM (to be scheduled outside of regular course meeting times)

Section 3. Cellular Mechanisms in Toxicology and Carcinogenesis

23. Cell Cycle Checkpoints I	Orren
24. Cell Cycle Checkpoints II	Orren
25. Protein Translation in Cancer I	Yang
26. Protein Translation in Cancer II	Yang
27. ER and Cellular Stress	Yang
28. Cell-Intrinsic Apoptotic Pathways	TBA
29. Extrinsic Apoptotic Pathways	Rangnekar
30. Proteosomal Degradation and Autophagy	TBA
31. Student Presentations of Relevant Literature	

SECTION 3 EXAM (to be scheduled outside of regular course meeting times)

Section 4. Toxic Insults and Disease

32. Chemical Carcinogenesis	Li
33. Tobacco Smoke and Air Pollutants	Orren
34. Occupational and Environmental Lung Disease	Mannino
35. Cd, Cigarettes, Cellular Changes, COPD	Mannino
36. Lung Toxicity and Animal Models	Fu
37. Lung Cancer	Hirschowitz
38. Environmental Agents in Gastrointestinal Cancers	TBA
39. Experimental Hepatocarcinogenesis	Glauert
40. Skin Carcinogenesis I	D'Orazio
41. Skin Carcinogenesis I	D'Orazio
42. Renal Toxicology	Fu
43. Student Presentations of Relevant Literature	

SECTION 4 EXAM: HELD DURING FINAL EXAM PERIOD