

APPROVED

The University Of Toledo

PROGRAM REQUIREMENT REVISION FORM

Please list the proposed program structure. Attach additional pages as necessary.

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Code*:	
Date Received:	(mm/dd/yyyy)
Effective Date:	(mm/dd/yyyy)

College: PHM Dept/Academic Unit: PHCL
 Contact Person: Ezdihar Hassoun Phone: 530-1917 Email: ezdihar.hassoun@utoledo.edu
 Program Name : MS in Pharmaceutical Sciences- The PTOX option
 Program Level: Undergraduate Graduate

Changes and Reason for Changes

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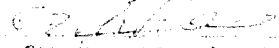
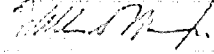
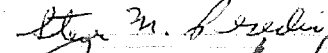
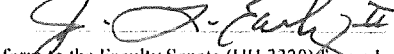
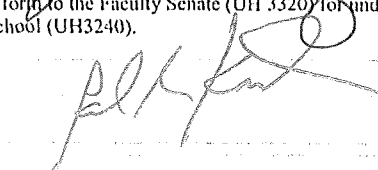
JUN 2 1 2010

COLLEGE OF GRADUATE STUDIES

See attachment

Attachment(*If more than 5000 bytes are needed for the change description*):

[Click here to view the attachment](#)

Department Curriculum Authority:  Date: 6/14/10 (mm/dd/yyyy)
 Department Chairperson:  Date: 6/14/10 (mm/dd/yyyy)
 College Curriculum Authority:  Date: 6/16/10 (mm/dd/yyyy)
 College Dean:  Date: 06/16/10 (mm/dd/yyyy)
 FS Acad. Programs or Graduate Council:  Date: 1/24/2012 (mm/dd/yyyy)
 Office of the Provost : _____ Date: _____ (mm/dd/yyyy)
 Registrar's Office: _____ Date: _____ (mm/dd/yyyy)

Proposed Modifications to the MS Program in Pharmaceutical Sciences- the Pharmacology/Toxicology Option (Amended from May 2010)

The required and elective graduate courses for the M.S program in Pharmaceutical Sciences, the Pharmacology/Toxicology option have been listed in the Graduate School Catalogue for several years and were never updated. As listed in the old catalogue, the program requires a minimum of 30 semester hours of graduate credit and of those 30 semester hours, a maximum of six semester hours is granted for thesis research. The program wished to increase this minimum for coursework to 36 credit hours because students would benefit academically from the additional coursework and it has become more of the norm in this area. Thus, the submitted program revision paperwork in May 2010 asked to have the new minimum of 36 credit hours for courses (21-22 credit hours of required courses plus 14-15 credit hours of electives) , and additional thesis research of a minimum of 6 credit hours. Accordingly, the curriculum has been modified as follows:

Changes suggested to the required courses:

- PHCL-5900 (Drug Disposition), listed as a required course, this is no longer taught and has been removed from the updated curriculum (see below).
- BIOL- 5610 (Advanced Biostatistics) is no longer a preferred replacement for PHCL-5140 (Interpretation of Pharmaceutical data), so we removed that course. PHCL-6150 (Advanced Pharmacokinetics) was an optional course but is no longer taught. Removed from the list (see below)
- We suggested PHCL-6600 to be 1-2 credits in stead of 1, since this course is of a very special nature where some of the students need to attend it for 2 semesters (will get 2 credits) but others need only to attend it for one semester and receive 1 credit.

Changes to the list of electives:

- Many courses in the department of Medicinal and Biological Chemistry/ the college of pharmacy are found to be appropriate electives for our graduate students, and have been added to the list including: MBC-6100 (Advanced Immunology), MBC-6550 (Biochemistry), and MBC-6800 (Methods in Biotechnology).
- The listed electives were reviewed and modified to enhance student training. MBC 6190 (Advanced Medicinal Chemistry), CHEM 6310 (Separation Methods), PHCL-6770 (Toxicological Risk Assessment), PHCL- 5420 (Advanced Neuroscience) and PHCL-5300 (selected Topics in Pharmacology) were removed.
- PHCL- 5760 is a required course and is listed now under this heading.
- PHCL-5990 (problems in Pharmacology) is a new listing for an elective course and can replace one or more of PHCL-5700, 5720, 5730, 6700, 6720, and 5760, if those were taken at UT at the undergraduate level. These undergraduate courses are listed as (PHCL-3700, 3720, 4730, 4810, 4820 and 4760, respectively) and student received a B or above.
- We have also added the following wording under the list of electives: **“Other electives may be recommended by the graduate committee of the department “**, since there are specific courses that are important for certain students as related to their particular research areas.

The following summarizes the requested curriculum for the M.S in Pharmaceutical Sciences major, The Pharmacology/toxicology option: **Required courses (or their equivalents):**

<u>Course number</u>	<u>Title</u>	<u>Credits</u>
PHCL-5140	Interpretation of pharmaceutical data	2
PHCL-5700	Pharmacology I-Principles of Pharmacology Autonomic Pharmacology and Non-Steroidal Anti-Inflammatory Agents and Related Pharmacology	3
PHCL-5720	Pharmacology II: Endocrine and CNS Pharmacology	3
PHCL-5730	Toxicology I	3
PHCL-5760	Toxicokinetics	3
PHCL-6600	Seminar in Pharmacology (1 semester or 2 semesters)	1-2
PHCL-6700	Pharmacology III: CNS and Cardiovascular/ Renal Pharmacology	3
PHCL-6720	Pharmacology IV: Chemotherapeutics	3
Total "required"		21-22

Thesis research:

PHCL-6900	M.S. Thesis Research in Pharmacology	1-6
PHCL-6920	M.S. Thesis research in Pharmacology	1-6
Minimum required (More than 6 credit hours can be taken)		6

Elective courses are to be selected from the following:

PHCL-5630	Cancer Chemotherapy (Highly recommended)	3
PHCL-5750	Toxicology II (Highly recommended)	3
PHCL-5990	Problems in Pharmacology (Highly recommended) (May replace PHCL-5700, 5720, 5730, 6700, 6720, and 5760 if these were taken at UT at the undergraduate level (as PHCL-3700, 3730, 4730, 4810, 4820 and 4760, respectively, and student received B ⁻ or above)	6-18
MBC-6100	Advanced Immunology	2
MBC-6550	Biochemistry	4
MBC-6800	Methods in Biotechnology	3
MBC-5620	Biochemical Techniques	2
Total "electives"		14-15

Total required for the program 36 (minimum) without thesis

Current Curriculum	Hr	Proposed curriculum	Hr
Required courses (as listed in the catalogue)	Total: 23-25	Required courses	Total: 21-22
BIOL5610-Advanced Biostatistics or PHCL-5140 Interpretation of Pharmaceutical data	2-4 3	PHCL-5140 Interpretation of Pharmaceutical data	2 3
PHCL-5700 Pharmacology I	3	PHCL-5720 Pharmacology II	3
PHCL-5720 Pharmacology II	3	PHCL-5730 Toxicology I	3
PHCL-5730 Toxicology I	3	PHCL-5760 Toxicokinetics	3
PHCL-5760 Toxicokinetics	3	PHCL 6600 Seminar in Pharmacology	1-2
PHCL-5900 Drug Disposition	2	PHCL-6700 Pharmacology III	3
PHCL-6150 Advanced Pharmacokinetics	2	PHCL-6720 Pharmacology IV	3
Or PHCL 6600 Seminar in Pharmacology	1		
PHCL-6700 Pharmacology III	3		
PHCL-6720 Pharmacology IV	3		
Thesis Research	Total: 6 (maximum)	Thesis research	Total: 6 (minimum)
PHCL-6900 M.S Thesis research in Pharmacology	1-6	PHCL-6900 M.S Thesis research in Pharmacology	1-6
PHCL-6920 M.S Thesis research in Pharmacology	1-6	PHCL-6920 M.S Thesis research in Pharmacology	1-6
Elective courses	Total: 0-1	Elective courses	Total: 14-15
CHEM 6310 Separation Methods	No credit posted to any of the listed courses	PHCL-5630 Cancer Chemotherapy	3
MBC 5620 Biochemical Techniques		PHCL-5750 Toxicology II	3
MBC 6190 Advanced Med Chem		PHCL-5990 Problems in Pharmacology	6-18
PHCL-5300 Selected Topics In Pharmacology		MBC 6100 Advanced Immunology	2
PHCL-5420- Advanced Neuroscience		MBC-6550 Biochemistry	4
PHCL-5750 Toxicology II		MBC-6800 Methods in Biotechnology	3
PHCL-5760 Toxicokinetics		MBC-5620 Biochemical techniques	2
PHCL-6770 Toxicological Risk Assessment			