



**UNIVERSITY OF MISSOURI-KANSAS CITY
SCHOOL OF PHARMACY**

Division of Pharmaceutical Sciences

GRADUATE STUDENT HANDBOOK

Doctor of Philosophy (Ph.D.) Degree

Last updated May 27, 2016

General Information

The School of Pharmacy faculty is composed of three divisions: Pharmaceutical Sciences, Pharmacology and Pharmacy Practice. This Handbook describes the activities of the Division of Pharmaceutical Sciences in directing education leading to the Doctor of Philosophy (Ph.D.) degree.

Doctor of Philosophy (Ph.D.) Degree

Study towards the Ph.D. at UMKC is governed and administered through the School of Graduate Studies. The Ph.D. program at UMKC is interdisciplinary. It enables a graduate student to design a unique program of didactic and laboratory coursework and dissertation research. The Interdisciplinary Ph.D. student must select on application a primary discipline and one or more co-disciplines. Such a student must satisfy the admission requirements of all the disciplines selected. Pharmaceutical Sciences is recognized as one of the Disciplines which may be selected by a prospective graduate student as primary discipline (i.e. major) or a co-discipline. (i.e. minor) This Handbook provides a **supplement** to the information on requirements for graduate degrees in the University of Missouri-Kansas City General Catalog and the School of Graduate Studies handbook, titled "Academic Regulations and Information for Doctor of Philosophy (Ph.D.) Studies at the University of Missouri-Kansas City" and any amendments thereof. **Students must adhere to all stipulations of the University for the degrees sought. Nothing in this description shall be construed to be in conflict with policies of the University.**

Admission Requirements for Graduate Study in the Pharmaceutical Sciences

All applications to graduate programs in the School of Pharmacy must be made through the UMKC Admissions Office (<http://www.umkc.edu/admissions/>) if you are a **domestic student** and UMKC ISAO (<http://info.umkc.edu/ISAO/>) if you are an **international student**. An applicant must meet the general requirements of the University to be considered by the School of Pharmacy. Admission deadlines are: October 1st for the Spring semester and February 1st for the Fall semester.

All applications are reviewed and must be approved by the Division of Pharmaceutical Sciences and by the School of Graduate Studies. Applicants to the UMKC Interdisciplinary Ph.D. program must be accepted by the Primary Discipline **and the Co-discipline(s) selected**. Admission to the graduate programs in Pharmaceutical Sciences is contingent on the ability of the graduate faculty to accept additional graduate students and the availability of both space and funding. Thus, worthy candidates may not be accepted for lack of a match in student and faculty interests and faculty availability or logistic considerations.

Applicants must submit the following documentation:

1. A professional degree or a baccalaureate degree in a related field such as chemistry, biology, or biomedical sciences.
2. An aggregate minimum grade point average (GPA) of 3.0 for those graded on a 4.0 basis or equivalent undergraduate achievement for others. (A prospective faculty advisor may require more stringent standards in an emphasis area)
3. Three letters of reference.
4. Graduate Record Examination (GRE) scores. With the new scoring system this would correspond to 148 for Verbal and 147 for Quantitative; or a combined score of 295.
5. For students whose primary language is not English, submission of scores obtained in the Test of English as a Foreign Language (TOEFL). A minimum score on the TOEFL is required of 550 (paper-based), 213 (computer-based), or 80 (internet-based).

6. Foreign students must meet financial independence criteria established by the University.

Full and Provisional Admission. A graduate student in the Interdisciplinary Ph.D. program is accepted by an individual professor and provisionally admitted in the graduate program upon the Chair's signature (until they have completed satisfactorily two semesters of graduate study). However, during the first two semesters, students will receive full admission after receiving a grade of "B" or better.

Faculty Advisors

If the student selects another faculty member in the Division of Pharmaceutical Sciences then any support from Division or School e.g. GTA, resources will transfer with the student. Resources from individual professors are at the discretion of such professors. The advisor from whom the student is transferring has the rights to all previous project(s) worked on by the student, and all research ideas, grant proposals *etc.* originating from that work. That advisor must grant permission in writing for the student to use any such material for meeting presentation, publication, patent, or dissertation.

If a student wishes to change permanent advisors, a meeting will be held between the student and the two advisors. If a conflict arises, then the meeting may be mediated by the chairman or third-party division faculty when the chairman is one of the two advisors.

If the student changes to a faculty member not in the Division of Pharmaceutical Sciences, then such student will immediately lose any financial support from Division of Pharmaceutical Sciences resources.

Enrollment as a Non-degree Seeking Graduate Student

Students who have baccalaureate degrees in an appropriate field may enroll for as many as 12 credits in graduate courses without having been admitted to the graduate programs in the School of Pharmacy. It is recognized by the Faculty that some students may not have achieved the grade point average as undergraduates or GRE scores necessary for full admission into graduate study. Some students, through work experience and maturity, may have more ability than is demonstrated in their undergraduate records. Students who have achieved a minimum of a B-grade in not fewer than 6 credits of graduate study in this School may apply for provisional admission to the graduate program in pharmaceutical sciences. Provisional admission requires that the student must have obtained the agreement of a member of the Graduate Faculty to serve as Advisor and the approval of the Graduate Programs Committee (GPC). **In no case will graduate credit of more than 12 credit hours be transferable to a degree program.**

Enrollment in any School of Pharmacy course requires approval of the Graduate Programs Committee of the School of Pharmacy.

Annual Evaluations and Graduate Files

Upon enrolling in the interdisciplinary Ph.D. program, each graduate student is required to complete and submit an annual evaluation form to the School of Graduate Studies at the end of each semester (Spring & Fall). This form is completed by and signed by the student, the primary advisor as well as their co-discipline advisor.

A requirement by the Division of Pharmaceutical Sciences is that each graduate student is required to submit a copy of their evaluation to include in their personal student file.

Additionally, the student should submit current curriculum vitae along with copies of pertinent information related to their progress through their graduate program. These key items are listed below:

- Curriculum vitae including current contact information
- Annual evaluations
- GTA and/or GRA assignments (Already on file from division office)
- Fellowship/scholarship awards
- Copies of publications, abstract notices, etc.
- Copies of any documents submitted to the SGS as part of their program, i.e., plan of study, comprehensive examination, etc.

The graduate files maintained by the Division of Pharmaceutical Sciences and locked in the division office in accordance with FERPA regulations.

REQUIREMENTS FOR PLAN OF STUDY – A SUMMARY –
(Note: For Residency Requirement must complete 21 credits in 18 months)

| | |
|---|---|
| <p align="center">Frequently Asked Questions</p> <ul style="list-style-type: none"> • Can I take more than 5 core courses? • How many miscellaneous courses I have to take? • If I take a co-discipline other than chemistry do I have to do additional coursework? • Do I have to take miscellaneous courses? • Can I get my co-discipline credit transferred? • Can I get my miscellaneous credits transferred? • Do I have to take someone from my Co-discipline in my committee? • If I take more than 5 core courses will the remaining be counted as miscellaneous or will they be wasted? • If I take a 4 credit hour course, how should I take 2 credits for completing my core courses • How many undergraduate courses I can take? • What are the available options as co-discipline? <hr/> <p align="center">SGS Requirements for IPh.D. Plan of Study (cont.)</p> <p>Minimum Coursework Requirements:</p> <ul style="list-style-type: none"> • Must satisfy all discipline-specific requirements and may include additional courses as appropriate to the student's research focus • The Plan must include coursework from all of the student's disciplines • Must include at least 30 didactic hours beyond the baccalaureate degree, exclusive of thesis or dissertation research hours, in courses taken at UMKC or in courses taken at another institution which are approved for transfer by the student's Supervisory Committee • Must include a minimum of 9 credit hours, exclusive of thesis or dissertation research hours, in a co-discipline area | <p align="center">SGS Requirements for IPh.D. Plan of Study</p> <p>Supervisory Committee Composition:</p> <ul style="list-style-type: none"> • Shall consist of at least five members of the Doctoral Faculty • A maximum of three from any one discipline • At least one from each discipline to which the student has been admitted • A committee may not include more than one Adjunct or Emeritus Doctoral Faculty member • An outside reader may also be included on the Supervisory Committee at the option of appropriate academic officers and/or the Dean of the School of Graduate Studies • The Research Advisor must be from the student's Primary Discipline • <p align="center">SGS Requirements for IPh.D. Plan of Study (cont.)</p> <ul style="list-style-type: none"> • NMT 60% of the total coursework taken at UMKC and included on POS, exclusive of thesis or dissertation research hours, may be from any one discipline • At least two-thirds of the total courses included on the plan of study must be numbered 5500 or above if taken at UMKC, or, if taken from an institution with a course-numbering system that differs from UMKC's, they must be courses intended primarily for graduate students. (NMT 4 three credit courses) • Coursework from disciplines other than the ones to which the student has been admitted may be included on the Plan of Study and counted in the total percentage (Miscellaneous Courses) <p>No more than 25 percent of the total coursework may be from disciplines <u>not formally participating in the Interdisciplinary Ph.D. program.</u></p> |
| <p align="center">Pharmaceutical Sciences-Primary Unit</p> <ul style="list-style-type: none"> • The minimum graduate credit hours required: 63 • 40 in didactic coursework • Credit for presentation of three seminars (3 credits) • 12 dissertation research credits (12.5.15) • Students will take a minimum of five courses offered by the primary-unit discipline. • "Three credit hours of statistics, plus 15 credit hours in pharmaceutical science coursework and 22 credit hours in one or a combination of related co-disciplines are all required." • Other electives. A supervisory committee may require that additional coursework be taken to prepare the student in a specific research area. | <p align="center">Co-discipline – Secondary Unit Pharmacology and Toxicology</p> <ul style="list-style-type: none"> • Generally, 55 post-baccalaureate credit hours • 20 hours of research and dissertation • 35 hours of course work • NMT 27 credit hours (60 percent) can be obtained from a single discipline (preferably in Pharmacology and Toxicology) • Remaining 18 credit hours (40 percent) can be obtained from one or more participating disciplines • NMT 25 percent of the course work from the non-participating disciplines will be counted toward the Ph.D. degree. |
| <p align="center">Pharmacology and Toxicology (Cont.)</p> | <p align="center">Pharmacology and Toxicology (Cont.)</p> |

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| <ul style="list-style-type: none"> NMT 15 credits may be allowed for courses taken in a master's degree program at another institution with the concurrence of the student's supervisory committee. When Pharmacology and Toxicology is chosen as the co-discipline, the minimum course requirements are completion of Pharmacy 5519 (4 credits), Pharmacy 5520 (5 credits) and 1 credit hour of seminar (Pharmacy 5580C) <p>Total Credits: 10</p> | <ul style="list-style-type: none"> When Pharmacology and Toxicology is chosen as the co-discipline, the minimum course requirements are completion of Pharmacy 5519 (4 credits), Pharmacy 5520 (5 credits) and 1 credit hour of seminar (Pharmacy 5580C) <p>Total Credits: 10</p> |
| <p style="text-align: center;">Co-discipline – Secondary Unit Chemistry</p> <ul style="list-style-type: none"> Students are required to complete a minimum of three courses (nine credit hours) at the 400-level or above At least three of these credit hours must be at the 5500+ level The systematic courses CHEM 5520R, 5530 and 5540R may be used to satisfy the "400-level or above" requirement, but not the "5500+ level" requirement. CHEM 5590, 5599 and 5699 may not be used to satisfy these requirements. Students who receive a grade of C+ (2.3) or less in two or more courses used to satisfy these requirements will be disqualified from using Chemistry as their co-discipline. Transfer credit from another institution cannot be applied to Chemistry's co-discipline requirement. | <p style="text-align: center;">Co-discipline – Secondary Unit Cell Biology and Biophysics</p> <ul style="list-style-type: none"> A minimum of 11 credit hours of core courses, plus seminars, including the following: LS-MBB 5561 General Biochemistry I (three credits) LS-MBB 5562 General Biochemistry II (three credits) LS-CBB 5612 or LS-MBB 5611 (1 credit) A sufficient amount of other core courses to constitute the required percentage of their overall program of study. 5700-level courses may not be used to satisfy cell biology discipline-specific course requirements. |
| <p style="text-align: center;">Co-discipline – Secondary Unit Oral Biology</p> <ul style="list-style-type: none"> The Plan of Study must include a minimum of 9 approved credit hours, exclusive of dissertation research hours, in the Oral Biology co-discipline area | <p style="text-align: center;">Co-discipline – Secondary Unit Biochemistry and Mol. Biology</p> <ul style="list-style-type: none"> Students who select this discipline as a co-discipline must take a minimum of 11 credit hours of core courses, including: LS-MBB 5561 General Biochemistry I (three credits) LS-MBB 5562 General Biochemistry II (three credits) LS-MBB 5611 or LS-CBB 5612 (1 credit) Plus sufficient additional core courses to constitute the required percentage of the overall program of study. |
| <p style="text-align: center;">Why the Confusion?</p> <ul style="list-style-type: none"> Pharmacy courses = 15 credits Co-discipline (chemistry) = 9 credits Miscellaneous = 22-9 = 13 credits Statistics (Miscellaneous) = 3 credits Seminar = 3 credits Total Miscellaneous credits = 16 credits Total course credits = 43 Percentage of Miscellaneous = $(16/43) \times 100 = 37\%$ If it exceeds the SGS limit of 25% for non-participating disciplines | <p style="text-align: center;">Co-discipline – Secondary Unit Mathematics/Statistics</p> <ul style="list-style-type: none"> At least 12 graduate credit hours. Up to six of these credit hours may be at the 400-level. Students must receive a GPA of 3.0 or better on all courses taken and a student's grades on all the courses can include no more than one C (C means C or C+) and NMT one B-. |

Process for Preparing and Submitting the Interdisciplinary Ph.D. Plan of Study (POS):

Completion of the Plan of Study, along with identifying the members of your supervisory committee, plays a fundamental role in outlining your doctoral coursework and preliminary research plans. The supervisory committee shall consist of at least five members composed of one doctoral faculty from each of the primary and co-disciplines with a maximum of three from any one discipline. Up to two of the remaining members of each committee can hold either

graduate or adjunct graduate faculty status. The proposed Interdisciplinary Ph.D. Plan of Study, signed by the student, members of the student's proposed Supervisory Committee, and the Academic Administrators in the student's disciplines, must be filed with the School of Graduate Studies no later than the end of the second year after the student has been provisionally admitted. It is in your best interest to complete the Plan of Study approval process before a significant amount of coursework has been completed.

As a reminder, SGS will send you (by separate email from the graduate office) in order to remain eligible for class enrollment YOU MUST HAVE YOUR POS SUMMITTED BY A CERTAIN DATE or a HOLD will be placed on your enrollment thus you will not be able to register for classes.

Requirements for the Ph.D. Degree: Ph.D. programs at UMKC are interdisciplinary. Students desiring to study at the doctoral level in pharmaceutical sciences must apply to the School of Graduate Studies. Detailed information on the general and discipline-specific admission requirements may be found in the School of Graduate Studies handbook titled "Academic Regulations and Information for Doctor of Philosophy (Ph.D.) Studies at the University of Missouri-Kansas City" and any amendments thereof.

Discipline-Specific Requirements for Pharmaceutical Sciences:

| <u>Courses</u> | <u>Credit Hours</u> |
|--------------------------------------|---------------------|
| Pharmaceutical Sciences Courses | 12 |
| Co-Discipline | 9 |
| Other Coursework | 6 |
| Statistics | 3 |
| PHAR 5580A, Seminar | 3 |
| PHAR 5699, Research and Dissertation | <u>12</u> |
| Total Credits | 45 |

Ph.D. Supervisory Committee: The Committee comprises the faculty advisor and four other faculty members who hold appointments to the UMKC Doctoral Faculty. At least one of the members of the Ph.D. Supervisory Committee, in addition to the faculty advisor who serves as Chair, is a member of the pharmaceutical sciences faculty and at least one member represents the co-discipline(s) selected. The Committee is recommended by the faculty advisor and approved by the Graduate Programs Committee and the School of Graduate Studies. The Supervisory Committee must approve the research protocol and program of study submitted by the student.

Special Requirements

Graduate students in Pharmaceutics, Medicinal and Pharmaceutical Chemistry and Pharmacokinetics will have completed coursework in calculus, organic chemistry, physical chemistry, biochemistry, microbiology, human anatomy and physiology, where appropriate to their interests. These courses may be taken in University Departments and Schools outside the School of Pharmacy. Because many courses have prerequisites, the sequence of recommended core courses is determined by the academic background of each student and requires the concurrence of the faculty advisor. Graduate students in the pharmaceutical sciences may be required to take examinations based on undergraduate courses to determine if additional courses are necessary.

Time Required

A student enrolled as a full-time student may elect 9-12 credit hours each semester. Credit more than seven years old at the time of graduation that is included on the program of study and has not been applied to a previous degree may not be counted toward the fulfillment of a graduate degree program unless validated to the satisfaction of the department or school and the School of Graduate Studies. Petitions and affidavits for this purpose may be obtained from the School of Graduate Studies.

Procedure for Graduate Teaching Assistant (GTA/GRA) Appointment UMKC School of Pharmacy Division of Pharmaceutical Sciences

Policy on Award of Teaching Assistantships:

UMKC standards:

- Students must have been enrolled at UMKC at least one term prior to receiving a GTA appointment.
- Students must have attained a minimum official iBT TOEFL score of 79. **(a score of 26 is the iBT TOEFL (speaking section in the classroom) and a scores of 24 for provisionals (non-speaking section in the classroom))**
- A graduate student from a nation or territory in which English is not the *sole* primary language must have satisfied each of the following standards in order to be certified to accept a GTA appointment. Please note that admission to UMKC does not guarantee a GTA appointment. Students must fulfill separate certification requirements in order to be eligible for GTA positions. These requirements are as follows:
 - Attain a passing TOEFL score (total and speaking portion).
 - Attend the fall Cultural Orientation.
 - Complete a video presentation (a mock lecture with a student and faculty panel).
 - The video presentation will be scheduled via the IGTA database. The student needs an advisor/faculty member from his/her department to serve on the panel – without this faculty member; the student cannot present a mock lecture. There will be at least 2 other faculty members on the panel, with up to 5 total. There will also be 3-5 undergraduate students on the panel.
 - The student should prepare 10-12 minutes of a mock lecture on the topic of his/her choice. There will also be a 3-5 minute question-and-answer session following the mock lecture.
 - The panel of 6-10 will use a rubric to determine the student's level of English proficiency. There are 5 points possible in 5 categories, for a total possible 25 points. In order to pass, the student must have an average of 19 points from the panel members. The rubric categories are:
 - Comprehension — can the IGTA candidate understand the English spoken by others
 - Fluency/Delivery — does the IGTA candidate speak fluently, intelligibly, and without hesitation
 - Vocabulary — does the IGTA candidate use terms correctly and use adequate verbiage to represent his/her ideas
 - Pronunciation — does the IGTA candidate pronounce words intelligibly and with proper intonation
 - Grammar — does the IGTA candidate correctly use grammar and word order

The only international graduate students exempted from the policies are:

- Native English speakers from English-speaking countries such as Canada, England, the Republic of Ireland, Australia and New Zealand.
- ¹The Applied Language Institute will first assess a student, then have him/her enroll in English 100S – Special Topics for one-on-one tutoring. Additional credits may be

necessary depending on the student's degree of English proficiency. The charge for the student to enroll in this course is to be paid by the department or unit. The Applied Language Institute can be reached at (816) 235-1233 or at 5301 Rockhill Road.

- For information on dates, or to register for the next Cultural Orientation or a panel presentation, contact the School of Graduate Studies (816) 235-1161.
- 1) An eligible GTA who is recommended by his major PhD advisor must apply for the open positions.
 - 2) The instructors for the open GTA position in a given course must accept the applicants request based on qualifications and past experiences.
 - 3) After a discussion, the faculty vote to approve or disapprove the appointment of the candidate under consideration. GTA's are distributed among faculty as evenly as possible.

Fee Remission & Non-Resident Waivers Policies (SGS, 2013-2014)

Fee Remissions: Fee remissions ordinarily apply to 6 - 9 credit hours per semester. Due to the new procedures of entering fee remissions at the department scholarship website (https://www.sfa.umkc.edu/site/dept_scsp/), each unit now has more control over how they distribute the fee remissions. To be eligible for the fee waivers, students must be appointed to at least a 0.25 FTE at a stipend level equal or greater than either the campus minimum (equivalent to \$7,600/year for 0.5 FTE) or the stipend level used in the previous year by the academic unit. Once an academic unit determines how they plan to use their funds, the authorized user will input the student's information & send the batch to Financial Aid for review & upload to the students' Pathway account. Graduate Studies will no longer be the "middle man" in this process to monitor the dollar amount used. Each unit has their awarded amount preset in the system. Once the designated money is depleted units must then find other funding sources for any other remaining students.

Non-Resident Fee Waivers: The School of Graduate Studies makes available Non-Resident Fee Waivers to non-resident students who (1) are enrolled in a doctoral degree program, or (2) employed by the University as a GRA or GTA (as described below), or (3) current recipients of a university-funded fellowship.

To be eligible for Non-Resident fee waivers, the work assignments of the GRA or GTA must conform to the following definitions:

Graduate Research Assistants (GRA): Graduate students (masters, doctoral, education specialist) who are assigned to a faculty member with responsibilities directly related to investigations germane to their field of specialization as part of a specific research project, grant or contract. The activities begin performed as part of the assistantship must be related to the student's plan of study and should directly apply to the individual's thesis or dissertation.

Graduate Teaching Assistants (GTA): Graduate students (doctoral, education specialist) who are assigned to assist a department chairperson, faculty members or other professional staff members by performing teaching-related duties such as full classroom responsibilities, instructional assistance in a laboratory, facilitating a discussion section linked to a credit course, developing teaching materials, preparing and giving examinations, or grading

examinations or papers. To be eligible for the fee waivers, students must be appointed to at least a 0.25 FTE at a stipend level equal or greater than the campus minimum (equivalent to \$7,600/year for 0.5 FTE) or stipend level used in the previous year by the academic unit.

The amount of the non-resident fee waiver should be equal to the total amount of nonresident fees up to nine (9) credit hours per semester. If an academic program requires students to enroll in more than 9 hours as a full-time student in order to complete the program in a specific time, fee waivers for the additional credit hours may be awarded. Documentation of the program requirement is required in order to grant the additional hours.

GRE TOEFL/IELTS Scores (Test of English as a Foreign Language)

GRE (Graduate Record Examination) test results: minimum scores of 148 (verbal) and 147 (quantitative) or a combined score of 295 (verbal + quantitative) (range 130-170 each), with a minimum writing score of 3.5 (range 0.6). (If taken more than 7 years ago, a retake may be required.

Exemption from Certification Process. If a student receives either an “undergraduate” or “graduate” degree from another university in the U.S., they are considered exempt by the School of Graduate Studies for participating in the GTA certification process. All they need to do is attend the Cultural Orientation, offered every fall by the School of Graduate Studies.

Financial Aid/Awards/Scholarships

The School of Pharmacy cannot guarantee financial aid on admission; however, the Faculty makes every effort to provide some form of aid to graduate students making satisfactory progress. This may include:

1. University of Missouri-Kansas City *Chancellor's Nonresident Fellowship* which provide remission of out-of-state tuition.
2. *Graduate Teaching Assistantships* (GTAs) and *Graduate Research Assistantships* (GRAs) which depend on the needs of the Faculty. University of Missouri policy dictates that foreign students whose primary language is not English cannot be considered for GTAs during their first semester of enrollment in graduate study.
3. *Graduate Studies Supplemental Fellowship Stipend Award* – up to 3 nominees per division before the Spring deadline date. Student must have justification and an outstanding academic record.
3. *Fellowships sponsored by* industry, government or non-profit organizations such as the American Foundation for Pharmaceutical Education or the United States Pharmacopeial Convention. These usually confer a stipend and remission of tuition.
4. *Judith Hemberger Graduate Scholarship*, an award for female graduate student enrolled in UMKC SOP, Pharmaceutical Sciences with a minimum GPA of 3.0 (Preference to a USA citizen.
5. *Richard and Paula Johnston Pharmacy Graduate Student Award*, shall be awarded during the first semester of graduate school at UMKC Pharmacy School to a student with a B.S. or Pharm.D. graduate from the previous year with the highest GPA entering the division of Pharmaceutical Sciences graduate program.

Refer to the Graduate Studies section of the General UMKC catalog

http://www.umkc.edu/catalog/archive/2011-12_Catalog.pdf for other sources of support.

General Coursework Requirements

All graduate students must satisfy requirements which include credits in Statistics (EDUC 5505) and Seminar (Pharmacy 5580A) as well Dissertation (PHAR 5699A) credits. Those students without a degree in pharmacy are advised to elect introductory graduate courses in medicinal and pharmaceutical chemistry, pharmaceuticals and pharmacology/ toxicology.

NOTE: For all incoming graduate students enrolled in pharmaceutical sciences and for all co-disciplines students who are enrolled, you are required to take the Foundations in Pharmaceutical Sciences (**PHAR 5690A**) course **in the first full Fall semester you are here** in pharmaceutical sciences graduate program. This course is for all beginners and is offered only in the FALL semesters. No exceptions.

Pharmaceutical Sciences Courses:

| Course # | Course Title | Credits Hrs | Semester |
|----------|--|-------------|---------------|
| 5501* | Introduction to Research | 1.0 | On demand |
| 5521 | Advanced Organic Medicinal Chemistry | 3.0 | Spring (even) |
| 5527 | Analytical Methods | 3.0 | Fall (odd) |
| 5533 | Adv Biopharmaceutics & Pharmacokinetics | 3.0 | Fall (odd) |
| 5580A* | Seminar in Pharmaceutical Sciences | 1.0 | Fall/Spring |
| 5588 | Techniques in Biotechnology | 3.0 | Spring (odd) |
| 5631 | Drug Product Design & Regulatory Affairs | 3.0 | Spring (even) |
| 5632 | Novel Drug Delivery Systems | 3.0 | Spring (odd) |
| 5634 | Protein & Nucleic Acid Drug Delivery | 3.0 | Fall (even) |
| 5690A | Foundations of Pharmaceutical Sciences | 3.0 | Fall (all) |
| 5699A* | Research & Dissertation | 1-6 | All |

PHAR 5580A: The student is required to register for the seminar within the semester they plan to present. If a student registers in a particular semester but cancels before they had a chance to present their seminar, they must present that seminar (without registering) the following semester in order to receive credit. The same rule applies if the student presents a seminar but fails to register, in the given semester, must register for credit the following semester. Failure to abide by these rules no credit grade will be given.

Graduate students with pharmaceutical sciences as primary discipline in the interdisciplinary Ph.D. program are required to attend all seminars. Three credits of Pharmacy 5580A are required for Ph.D. students.

Responsible Conduct of Research. To fulfill this requirement the following course must be listed on your POS (either 3 or 6 credits):

Elective

| Course # | Course Title | Credit/hours & Semester |
|-----------|---------------------------------|---|
| MEDB 5561 | Responsible Conduct in Research | 3 credits every fall on demand & online during the summer session |

*Courses offered "on demand" generally require a minimum number of students enrolled; the number determined by the professor who offers them.

Pharmacology/Toxicology Courses:

Several courses offered by the Division of Pharmacology/Toxicology may be appropriate electives. These are listed below.

| Course # | Course Title | Credits Hrs | Semester |
|----------|--|-------------|-------------------|
| 5507 | Basic Pharmacology II | 3.0 | Fall/Spring (all) |
| 5509 | Basic Toxicology | 3.0 | Fall/Spring (all) |
| 5515 | Drug Absorption, Distribution, Excretion | 3.0 | Spring (even) |
| 5519 | Pharmacology I | 4.0 | Fall (all) |
| 5520 | Pharmacology II | 5.0 | Spring (all) |
| 5530 | Pharmacology III | 4.0 | Spring (all) |
| 5580C | Seminar in Pharm/Tox | 1.0 | Fall/Spring (all) |
| 5615 | Methods in Pharmacology & Toxicology | 3.0 | Fall (all) |
| 5640 | Biochemical & Molecular Toxicology | 3.0 | Spring (even) |

Generally, graduate students selecting pharmaceutical sciences as primary discipline are required to select five graduate courses from Pharmaceutical Sciences. Graduate students selecting pharmaceutical sciences as co-discipline are required to take nine units of courses originating from the Division of Pharmaceutical Sciences (These are to be selected from the above course list on the previous page only, not including those marked with an asterisk.) Other graduate courses appropriate are available in the Department of Chemistry, the School of Biological Sciences and other schools and departments of the university.

Pharmaceutical Sciences as Co-Discipline

Students choosing pharmaceutical sciences as a co-discipline will elect graduate courses in pharmaceutical sciences compatible with their research objectives as recommended by the supervisory committee. Students will not be allowed to attain more than on C or lower grade in co-discipline courses. Generally, the following 3 courses will be required.

Co-disciplines Courses for Pharmaceutical Sciences (08.01.2012)

For provisionally-admitted co-discipline students in Pharmaceutical Sciences in fulfillment of their **full-admission requirements must take at least 9 credits** of the regular recommended courses: (**PHAR 5521**-Advanced Organic Medicinal Chemistry; **PHAR 5527**-Analytical Methods; **PHAR 5533** Biopharmaceutics & Pharmacokinetics), **PHAR 5588**-Techniques in Biotechnology; **PHAR 5631** (Drug Product Design and Regulatory Affairs); **PHAR 5634**-Protein & Nucleic Acid Drug Delivery; and **PHAR 5690A**-Foundations of Pharmaceutical Sciences) and pass with a "B" or better..

Suggested Compatible Co-disciplines

Chemistry, Cell Biology and Biophysics, Molecular Biology and Biochemistry, Mathematics, Oral Biology and Pharmacology

Plan of Study (POS)

A research proposal (Plan of Study) must be submitted to the Supervisory Committee no later than the end of the second year after the student has been provisionally admitted to the program. Passing comprehensive oral and written examinations given by the Supervisory Committee by the end of the third year is necessary before a student can be admitted to candidacy for the Ph.D. degree. A report of the results of the examination is provided to the Graduate Programs Committee and the School of Graduate Studies. Grading on these

examinations is "pass-fail". A judgment of "pass" must be obtained from all or all but one member of the Supervisory Committee.

After a student has completed a body of research satisfactory to the Supervisory Committee, a dissertation is written describing the work performed. After the dissertation has been read and approved by the Supervisory Committee a Dissertation Defense is conducted. Generally, the work is presented as a public seminar, an announcement and abstract of which is posted not less than two weeks before and presented during a regular semester or summer session during regular school hours. After questions from the audience, further examination and recommendations by the Supervisory Committee are provided *in camera*. The dissertation must be approved in form and content by the School of Graduate Studies as well as the Supervisory Committee. In general, a dissertation in pharmaceutical sciences should be the basis of at least two publications in peer-reviewed journals.

Divisional Exams

Students are required to pass the divisional exams before appearing for their comprehensive exams administered by the Supervisory Committee. A total of eight exams will be administered, four in the general area of pharmaceuticals (i.e. pharmacokinetics, formulations etc) and four in the general area of medicinal chemistry (i.e. biochemistry, organic chemistry etc) of which a student may take six to eight.

***Criteria for Divisional Exams:** You must take and receive a passing score on **four of the eight exams** offered, that is, by passing two exams in your research area and pass two exams outside your research area. The two areas are pharmaceuticals & medicinal chemistry. **NOTE:** Only Dr. Cheng's exam will count for either pharmaceuticals or medicinal chemistry

If a student does not pass the first round, they may retake as many exams as they choose the second round, to attempt to pass in the failed area. If they do not succeed after a second attempt, the student will have to leave the program.

Written and Oral Examinations (Comprehensive Exams)

Students are required to complete a written examination based on the graduate and undergraduate curriculum administered by the Division faculty. The Co-discipline may require an additional written examination.

Activities, programs, facilities, policies and procedures of the Interdisciplinary Ph.D. Program can be found at SGS <http://sgs.umkc.edu/wp-content/uploads/2014/05/PhD-Student-Handbook-2014-15.pdf>

FORMS:

NOTE: The following forms from SGS to complete your Ph.D. studies can be found below. (Not all forms are needed).

The Annual Evaluation of Student Progress form can be found @ <http://sgs.umkc.edu/forms/>, click under Current Students, then Forms and select **IPHD Form-1**. This form is due by the 30 of September of each year.

The Interdisciplinary Ph.D. Plan of Study (POS) form can be found @ <http://sgs.umkc.edu/forms/> click under Current Students, then Forms and select **IPHD Form-2**. You can file your POS even if you have not yet completed the courses you listed on your POS. SGS will fill in your grade for you, once you have completed that particular course.

The Comprehensive Examination – Report of Results form can be found @ <http://sgs.umkc.edu/forms/> click under Current Students, then Forms and select **IPHD Form-3 & 4**.

Approval of Interdisciplinary Ph.D. Dissertation Proposal form can be found @ <http://sgs.umkc.edu/forms/> click under Current Students, then Forms and select **IPHD Form-5**. Please send this form, along with the Scoring Rubrics completed and signed by each committee member, and a copy of the Dissertation Proposal to the School of Graduate Studies.

Preliminary Approval of Dissertation form can be found @ <http://sgs.umkc.edu/forms/> click under Current Students, then Forms and select **IPHD Form-6**. This form needs to be approved by degree candidate's supervisory committee.

Report of Results of Final Dissertation Examination for Interdisciplinary Ph.D. Candidates form can be found @ <http://sgs.umkc.edu/forms/> click under Current Students, then Forms and select **IPHD Form-7**. This pass/fail form is signed by all supervisory committee members evaluating your oral presentation and written dissertation with superior, good, fail or inferior.

Doctoral Dissertation Final Approval form can be found @ <http://sgs.umkc.edu/forms/> click under Current Students, then Forms and select **IPHD Form-8**. You need a copy for each committee member to fill out and signed. In this final report form the committee evaluates your disciplinary & co-disciplinary knowledge, method of research, use of existing literature, originality, scope substance thought pattern, written clarity, oral communication and summary.

Request for Change in Ph.D. Plan of Study Interdisciplinary Ph.D. Program form can be found @ <http://sgs.umkc.edu/forms/> click under Current Students, then Forms and select **IPHD Form-9**. You will need this form if you are changing one of your courses, however, if you plan to make major modifications to a previously approved POS, requires a revised Ph.D. POS for review and approval by the IPHD Executive Committee.

Request for Change in Supervisory Committee Interdisciplinary Ph.D. Program form can be found @ <http://sgs.umkc.edu/forms/> click under Current Students, then Forms and select **IPHD Form-10**. If you are changing committee members, you will need this form.

Request for Change in the Status of Provisional interdisciplinary Ph.D. Student form can be found @ <http://sgs.umkc.edu/forms/> click under Current Students, then Forms and select **IPHD Form-11**. This form indicates if you met full admission into the Ph.D. program.

Request for Change of Discipline for a Student Participating in the Interdisciplinary Ph.D. Program form can be found @ <http://sgs.umkc.edu/forms/> click under Current Students, then Forms and select **IPHD Form-12**. Use this form if you are changing your primary disciplinary or co-disciplinary. For adding a discipline, a new narrative statement must be attached.

Request for Extension of Interdisciplinary Ph.D. Program form can be found @ <http://sgs.umkc.edu/forms/> click under Current Students, then Forms and select **IPHD Form-13**. Use this form to justify if you need to additional time to advance to candidacy or to complete your dissertation.

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UMKC School of Pharmacy
ADJUNCT FACULTY APPOINTMENTS
2014-2015

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For additional information about programs or about the admissions process, contact the following persons:

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Information on the Interdisciplinary Ph.D. program may be obtained by contacting the UMKC School of Graduate Studies at (816) 235-1611 or 235-1301 (www.umkc.edu/sgs).