Courses | Request Tracking

New Course Form

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Attachments:

Browse... No file selected. Upload File

	ID	Attachment
Delete	5075	HCCCPreamble1.pdf
Delete	5076	Content 11_1.pdf
Delete	5096	PHR 922 Foundations in Pharmaceutical Science II -

First 1 Last

Select saved project to retrieve... Get New Go to Request Tracking Page

(*denotes required fields)

1. General Information

a. * Submitted by the College of: PHARMACY Submission Date: 6/9/2015

b. * Department/Division: Pharmacy

c.

* Contact Person Name: Frank Romanelli Email: froma2@email.uky.edu Phone: 257-4778

* Responsible Faculty ID (if different from Contact) Eric Munson Email: eric.munson@uky.edu Phone: 323-3107

d. * Requested Effective Date: ○ Semester following approval OR ◉ Specific Term/Year [1] Spring 2017

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 [4] ◉ No

b. * Prefix and Number: PHR 922

c. * Full Title: Foundations in Pharmaceutical Science II: Pharmaceutics and Biopharmaceutics

d. Transcript Title (if full title is more than 40 characters): Pharmaceutics and Biopharmaceutics

e. To be Cross-Listed [2] with (Prefix and Number):

f. * Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours[3] for each meeting pattern type.

	Lecture		Laboratory[1]	48	Recitation		Discussion
	Indep. Study		Clinical		Colloquium		Practicum
	Research		Residency		Seminar		Studio
	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: 3

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:

The goal of this course is to introduce students to the principles that underlie drug delivery. The course is divided into three components: 1) basics of drug preformulation, including solubility and stability; 2) dosage form design and properties; and 3) formulation and manufacturing of dosage forms.

k. Prerequisites, if any:

l. Supplementary teaching component, if any: ( ) Community-Based Experience ( ) Service Learning ( ) Both

3. * 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 [x] 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? 140

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:

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 [5] for ANY program? ◉ Yes ○ No

If YES [5], list affected programs::

PharmD new curriculum

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) identification of additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See SR 3.1.4.)

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.

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[1] Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
[2] The chair of the cross-listing department must sign off on the Signature Routing Log.
[3] In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, represents at least two hours per week for a semester for one credit hour. (from SR 5.2.1)
[4] You must also submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.
[5] In order to change a program, a program change form must also be submitted.

Rev 8/09

Submit for Approval Save Draft

Doctor of Pharmacy Degree Program

SPRING 2017

Foundations in Pharmaceutical Science II: Pharmaceutics and Biopharmaceutics
PHR 922
3 CREDIT HOURS

Course Coordinator:	Dr. Eric Munson , Associate Professor
Office Address:	365 Bio Pharm Complex
Email:	eric.munson@uky.edu
Office Hours:	by appointment
Course Instructors:	Dr. Younsoo Bae
	Dr. Eric Munson
	Dr. Dan Pack

Course Description:

The goal of this course is to introduce students to the principles that underlie drug delivery. The course is divided into three components; 1) basics of drug preformulation, including solubility and stability; 2) dosage form design and properties; and 3) formulation and manufacturing of dosage forms.

Prerequisites:
Foundations I

Course Philosophy:
By integrating foundational sciences, this course will provide the student pharmacist with the insight needed to understand drug delivery. With this understanding, students will be prepared to apply these concepts to more complicated clinical situations to be covered in subsequent courses.

The course is divided into three basic parts. First, there are fundamental principles that must be understood about the physicochemical properties of a drug molecule before a particular delivery route is chosen. For this reason, a strong emphasis in the principles of solubility, partitioning, effects of pH, and diffusion through synthetic and biological barriers is made throughout the course. Second, the delivery system should be chosen based upon these physicochemical properties. Both the basic principles as well as advantages and

disadvantages of various drug delivery systems for a variety of important routes of administration including oral, parenteral, pulmonary, ophthalmic, topical, nasal, buccal, transdermal, rectal, and vaginal will be described. Additionally, novel systems including lipid and polymer-based drug delivery systems, needle-free injection devices, and drug targeting will be highlighted. Finally, the formulation and manufacturing of dosage forms be able to discuss aspects of the drug development process that are central to the development of both novel dosage forms and delivery systems.

Student Learning Outcomes:
After completing this course, the student will be able to:

I. Physicochemical properties of drugs

A. Learn the relationship between the physicochemical properties of drug molecules and the dosage forms
B. Know why solubility and permeation are critical to the successful delivery of drugs
C. Understand the mechanisms of drug stability in solution, including oxidation and hydrolysis
D. Calculate the rates of drug reactivity in solution, including the effects of temperature and pH on the kinetics of drug reactivity

II. Principles of Drug Delivery

A. Understand the biopharmaceutical processes in drug delivery, particularly as it relates to passage through membranes.
B. Identify the modes of drug delivery, including oral, parenteral, transdermal etc.
C. Understand the limitations of each mode of drug delivery, and why one mode would be chosen compared to another.
D. Compare modified drug release to immediate release, including the mechanisms and rates associated with the process

III. Principles of Formulation and Manufacturing

A. Understand the unique advantages and problems associated with solid-state drug products, such as chemical and physical stability and dissolution.
B. Understand the process of drug formulation, including the identification and role of excipients.
C. Know the basic steps in drug manufacturing, including the unit operations necessary to make a solid oral dosage form
D. Explain the regulatory environment that is used for drug manufacturing, including the role of the FDA in drug approval and manufacturing.

UK COP Adopted CAPE Outcomes Mapping

Outcome	CAPE Mapping	Assessment
Pharmaceutics/ Biopharmaceutics (Domain 1.1)	Domain 1.1.1 Physical-chemical principles of dosage forms	Summative exam and quizzes
	Domain 1.1.2 Biological principles of dosage forms	Summative exam and quizzes
	Domain 1.1.3 Principles of drug delivery via dosage forms	Summative exam and quizzes
	Domain 1.1.4 Principles of dosage form stability and drug degradation	Summative exam and quizzes
	Domain 1.1.5 Materials and methods used in preparation and use of dosage forms	Summative exam and quizzes

Course Meeting Pattern and Location (specify modular if so):
Recitation Monday, Tuesday, and Friday

Required Materials:
Textbooks, lab materials, clickers, other things the student needs to acquire should be listed here.

Summary Description of Course Assignments (if applicable)
Provide a short summary of the different components of your assignments. For example, a short description of exams, assignments, etc… Students should be able to determine what they will be required to do from this.

Assessment

90 – 100% = A
80-89% = B
70-79% = C
<70% = E

Exam 1	30%
Exam 2	30%
Final Exam	30%
Homework/Quizzes	10%

*All exam/course related grades and assessment are final after 3 days of posting.
* Non-circulating Exams and assignments may be viewed on-line at the course website

*Old examinations will not be provided or circulated.

*Grades will be rounded to the first decimal point.

Exam Schedule/Location/Times

Exam 1	Oct 1, 2015	8-10AM	(BPC 124)
Exam 2	Nov 1, 2015	8-10AM	(BPC 124)
Final Exam	Dec 1, 2015	8-10AM	(BPC 124)

Exam Policies
Bathroom breaks are not allowed, except for emergencies, and will require TA escort.
Please adhere to assigned seating
ExamSoft® will be used to deliver exams and quizzes. It is your responsibility to adhere to College policy for installation and maintenance of software.

Course Policies:

Submission of Assignments:

1. All daily quizzes will be conducted employ student-response technology. Students are expected to own the response device
2. All homework assignments will be submitted on-line to the course website usng the learning management system (LMS). The teaching assistant will be available to help students should the need arise.
3. All examinations will be carried out using Examsoft.

Daily Attendance Policy:
The Instructors firmly believe that regular class attendance is critical to success in the course. Faculty members also believe that students are professionals who are empowered to make their own decisions. Although class attendance will not be monitored, students are expected to participate in the daily quizzes. No make-up quizzes will be administered.

Examinations and Quizzes:

Examinations: Examination system does involve some hardships on students, most notably those with religious considerations, and every effort will be made to accommodate those individuals. Please contact Professor XXX within the first two weeks of the semester to reschedule an examination if necessary for religious considerations, or other University-approved indications. These policies may be found in the student handbook: http://pharmacy.mc.uky.edu/programs/pharmd/files/COP%20Student%20Handbook.pdf

Assigned seating will be posted for each examination by the Office of Education. Daily quizzes will not have assigned seating. Bathroom breaks will not be permitted during either examinations or quizzes.

Missed Examinations: Emergency medical situations also arise, making attendance at an examination or daily quiz impossible. In those situations, students are urged to notify Professor XXX (telephone XXX, leave a message) or Dr. Kelly Smith's office (859-257-2521) when practical. Early examination, oral examinations, and term papers may be required for examinations missed during excused absences. The right to request appropriate verification is reserved. Examinations missed without notification will be assigned a grade of zero.

Severe Weather Policy: The College of Pharmacy will operate according to University guidelines for classes, labs and exams in the event of severe weather. Official University announcements about closings are made on local radio and television stations. If the University is closed, then PHS XXX will be postponed during that period. As soon as possible the faculty in charge of a course, or the Academic Affairs Office, will send out a note on Blackboard describing the details for making up missed time. If no note is sent assume the activity previously scheduled for the day classes resume will be held that day, regardless of what was missed. You will be expected to check your e-mail regularly, **especially during inclement weather.** Notices about changes in schedules for a particular day's activities, especially activities the following morning, will ordinarily be sent before 9:00 PM the previous evening.

Missed regular class material will generally be made up during the course of the semester either with special sessions or through the regularly scheduled class times remaining during the semester. Students should be prepared however, for possible additional course meetings the day classes resume.

Missed examinations will generally be rescheduled whenever rooms are available. Students should be prepared to take a missed examination on the day classes resume and as soon as a room can be rescheduled. A note will be sent out on the class on Blackboard as far in advance as possible.

Saturday examinations are a particular challenge because the University does not ordinarily operate over the weekend. If inclement weather develops on the Saturday an examination is scheduled, and the instructor postpones the exam, a message will be posted on LMS. If no message is posted, assume the examination is taking place as regularly scheduled.

Attendance Policy:

Excused Absences:
College Policy (student handbook) --
http://pharmacy.mc.uky.edu/programs/pharmd/files/COP%20Student%20Handbook.pdf

Verification of Absences (boilerplate)
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.

Classroom Behavior Policies / Professionalism (optional)
Describe any policies that you enforce in your classroom, e.g., no cellphones or in off position, guidelines for respectful dialogue, use of mobile devices, etc. and consequences for such actions as appropriate.

Academic Integrity:
Cheating and plagiarism will not be tolerated and will be prosecuted to the fullest extent of Honor Code and University regulations. All examinations will be taken in accordance with the College of Pharmacy Honor Code which can be found at the following address: http://pharmacy.mc.uky.edu/programs/pharmd/files/COP%20Student%20Handbook.pdf. Each student is directed to the Honor Code and should familiarize themselves with it.

Suggested that faculty clarify policies elated to academic integrity as it relates to group work of any kind.

Accommodations for Disabilities (Physical, Mental and/or Learning)
Any student seeking accommodations from the University must notify the Director of Student Success and Career Development in the College of Pharmacy of that disability, in writing, preferably before the beginning of the school year, **but in no case later than the third day of classes** for the fall/spring semester. If a disability develops during the school year for which accommodations are requested, the student must notify Academic and Student Affairs, in writing, as soon as he/she becomes aware of the disability. The student must also notify the coordinator of each course he/she is enrolled in of his or her anticipated accommodation in the same time frame. The student will be required to provide current documentation of the condition for which they require accommodation to the University Disability Resource Center:
http://www.uky.edu/StudentAffairs/DisabilityResourceCenter/ (257-2754) before any accommodations can be instituted.

The Disability Resource Center will base provision of services to accommodate disability upon a review of current medical or psychological document and an assessment of the current needs and appropriate services. In addition to the student's notification, request for accommodation and documentation will be kept confidential, but will be disclosed in the provision of the accommodation. Students having the same accommodation may be tested together. A student with documentation from previous semesters in the curriculum is not required to have his/her case re-evaluated by the Disability Resource Center. However, he/she must notify the coordinator of each course he/she is enrolled in of his or her accommodation in no case later than the third day of classes for the fall/spring semester.

Religious Observances

"Faculty shall give students the opportunity to make up work (typically, exams or assignments) when students notify them that religious observances prevent the students from doing their work at its scheduled time. Faculty shall indicate in their syllabus how much advance notice they require from a student requesting an accommodation. Faculty may use their judgment as to whether the observance in question is important enough to warrant an accommodation, although the presumption should be in favor of a student's request. The Offices of Institutional Diversity, the Dean of Students, and the Ombud are available for consultation." Thus faculty are to be flexible in allowing student observers to make up school work missed on the official or commonly recognized high holy days. Supervisors are urged to show the same sensitivity regarding employees.

On-line Course Evaluation Policy for Course Syllabi

Regular course and instructor evaluations are required by state, university and college regulations. These evaluations are essential for improving student learning by providing feedback to faculty about their classroom presentations. Based on your feedback, important decisions are made about courses and how they are taught. This process CANNOT work without your input. Please complete a course and instructor's evaluation for each of your courses.

Your individual responses are completely anonymous. However, the Office of Education Innovation can track who has or has not completed each evaluation and send reminder notices. Summary reports of aggregate data will be provided to the faculty after the semester is completed.

If you do not complete an evaluation, you will receive an incomplete grade ("I") for the semester because you have not completed all of the course requirements. When you complete the course evaluation, the incomplete grade will be changed to the grade earned in the course.

Syllabus is subject to change with sufficient notice.

Course Schedule

Week	Module	Content
1	Fundamentals of Drugs in Solution	a. Solubilization b. Partition and Permeation c. pH and Partition theory
2	Fundamentals of Chemical Stability	a. Hydrolysis and Oxidation b. Stabilization c. Kinetics
3	Fundamentals of Chemical Stability	a. Chemical Stability b. Temperature effects c. Temperature effect
4	Fundamentals of Chemical Stability	a. pH effect b. pH effect c. Drug Absorption in GI
5	Physicochemical Stability	a. Drug Absorption in GI b. Review c. EXAM
6	Oral Modified Delivery	a. Basic principles b. Equations c. Applications
7	Other Delivery Methods	d. Oral Mucosal e. Rectal f. Vaginal
8	Other Delivery Methods	a. Vaginal b. Ophthalmic c. Opthalmic
9	Parenteral Delivery	a. Parenteral b. Parenteral c. Parenteral
10	Drug Delivery	a. Parenteral b. Review c. EXAM
11	Other Delivery Methods	a. Aerosol b. Pulmonary c. Nasal
12	Topical and Transdermal	a. Topical b. Transdermal c. Delivery to Brain
13	Solid-state physicochemical properties	a. Physicochemical Properties b. Physical Stability c. Chemical Stability

14	Formulation and Manufacturing	a. Formulation and Excipients b. Manufacturing c. Regulatory
15	Final Exam	a. Review b. FINAL EXAM

University of Kentucky
College of Pharmacy

CURRICULAR REFORM 2016

Background

The current Doctor of Pharmacy curricula at the University of Kentucky was implemented in 1996 and with few minor exceptions the degree program has essentially remained unchanged. As a component of the 2011-13 Collegiate Strategic Plan the faculty endorsed a broad scale curricular reform process. The decision to engage in a major revision of the curriculum was driven by both internal (lag time since major modifications) and external factors (role of technologic and learning/pedagogic advances). Beginning in July of 2011 the College constituted several committees and working groups to design a new curricular framework that would change both the content and delivery model associated with the current Doctor of Pharmacy degree program. These various working groups have involved faculty, students, staff, residents, and alumni. Additionally, the College's external advisory board has received regular updates on curricular reform progress and, in turn, provided feedback and recommendations for additional changes or modifications. In May of 2014 the faculty and other parties participated in a Curricular Reform Retreat held at the Boone Center. The Content map of courses has undergone 11 different revisions (see Content 11.1 attachment). To date, Curricular Reform has involved 4 distinct phases. The goal for launch of the 'new' curriculum (with the first professional year) is projected for Fall 2016.

Phase 1: Establishment of new outcomes for the Doctor of Pharmacy Degree Program. These 'new' outcomes were adopted and modified from the 2014 Center for Advancement of Pharmaceutical Education (CAPE) Proposed PharmD curricular outcomes. Once these outcomes were adopted both a Content Map and Delivery model were designed. Phase 1 also involved a re-examination of existing pre-requisites with small modifications which were approved by the HCCC in 2014.

Phase 2: This phase involved the initial 'build-up' of new courses as defined by our content map. These build-ups were orchestrated by teams of faculty who proposed goals and objectives for each course as well as broad "teaching topics" that would be found within each course. These teams also made initial proposal for assessments within each course as well as projected credit hour allotments.

Phase 3: In this phase specific faculty members were assigned a 'new' course and after being provided with 'build up' documents from Phase 2 they were asked to formally assemble a course syllabus using a uniform template syllabus.

Phase 4: All proposed syllabi were then collected and mapped to intended outcomes as well as topical areas required by our accreditation agency (Accreditation Council of Pharmacy Education-ACPE). Courses were also each reviewed by the curriculum committee and referred to course directors for edits, modifications, and clarifications. Subsequently, all syllabi were approved/endorsed by the curriculum committee and forwarded to the faculty. At the May 2015 meeting of the College Faculty all syllabi were approved.

Phase 5: Submission to HCCC for approval of courses by professional year.

Phase 6: PY1 ramp-up, The Institute, Fall 2016 launch (see "on-going activities" below).

Curricular Highlights (see Content 11.1 attachment)

- The new curriculum spans 4 professional years with no changes having been made to the fourth professional year. The fourth professional year involves 42 weeks of advanced pharmacy practice experiences (APPEs).
- Content within the new curriculum will be delivered using a hybrid or blended-learning model involving recitation, mini-lectures, off-loaded content, inverted classrooms, workshops, projects, and cases. Personal accountability for learning will undergird our approach as will limited or no "re-teaching" of previously instructed course work.
- The first professional year is primarily composed of foundational course work.
- The new curriculum involves a more integrated rather than silo approach to instructing pharmacy practice. The existing curriculum teaches students medicinal chemistry, pharmacology, physiology, pathophysiology, and pharmacotherapy in a set of separate and distinct courses. Within the new curriculum all of these courses have been combined and modularized so that instruction centers around a core body system or disease state. Instruction is integrated rather than sequestered. The integrated modular instruction will occur in a series of courses dubbed as "Integrated Drugs and Disease (IDD)." IDD will begin in the first professional year and continue to the third professional year as topics increase in complexity.

  An example of IDD sequence involving HIV would involve instruction regarding normal immune physiology followed by the pathogenesis of HIV infection. Students would then be introduced to the medicinal chemistry of antiretrovirals, followed by the pharmacology of these agents. Lastly, students would learn the pharmacotherapeutic strategies and treatment guidelines for use of these drugs in managing acutely infected patients.

- Students will take part in a two-part course series designed to provide a foundation in scholarly inquiry. Scholarship I will introduce the fundamentals of basic inquiry while Scholarship II will require students to engage in the development of some faculty-mentored research, business, or clinical practice plan.
- iCATS 1.0 will remain a component of the new curriculum as defined by the UKs Center for Interprofessional Education (CPE).
- New curricular elements will include basic instruction in the differential diagnosis of low acuity primary care issues commonly encountered in the pharmacy setting, course work in

clinical reasoning and thought processes, and a course series dedicated to the enhancement of 'soft skills.'

- The total projected credit hours for the new curriculum is estimated to be: 152 hours. The existing curriculum embodies 156 credit hours.

On-Going Activities

- Beginning in 2013 the College launched a faculty development seminar series labeled "CALIBRATE," designed to prepare faculty for teaching in the new curriculum. Topical areas covered within this on-going seminar series have varied and included both internal as well as nationally recognized external speakers.
- PaCE or the 'Patient Care Experience' is a six semester sequence of courses intended to span the first three professional years of the new curriculum which will engender both simulated patient care encounters (laboratory exercises) and experiential training. The PaCE sequence is currently being revised and will be presented to the curriculum committee and faculty before being forward to the HCCC. To date plans are for PaCE to follow a "see one, do one, teach one" model where teams of first, second, and third professional year students work in teams to complete patient care related activities. Senior students within these teams will be given more supervisory responsibilities, while more junior students will be responsible for carrying out prescription orders or other patient related activities.
- STEPS: a component of assessment related to the new curriculum will be the incorporation of milestone exams or "STEPS" at the conclusion of each professional year. These exams will allow students to gauge their progress and learning across a professional year and will afford the ability to identify potential areas of weakness that could be remediated before progression to the next professional year. The development plan for these assessments is on-going.
- iPAD Initiative: The faculty are exploring adoption of an iPAD computing requirement for all students matriculating into the new curriculum. The use of a standardized iPAD platform would allow the faculty to better standardize teaching, accomplish content distribution, and conduct assessments.
- ExamSoft: The faculty have endorsed a move to ExamSoft® as the standard assessment software which will be used within the new curriculum. The use of ExamSoft® will allow for the standardization of all assessments, development of question banks, more rapid dissemination of feedback and grades, and mapping of individual questions to both outcomes as well as topical areas required by our accreditation agency. ExamSoft will also allow the faculty to provide students more robust statistical data in terms of their performance in specific areas or topics associated with any given course within the new curriculum.
- "The Institute": As an extension of the CALIBRATE series, The Institute will involve a more intensive "boot camp' approach to faculty and course development. The Institute will be a hands-on, multi-day workshop designed as a more rigorous training experience for faculty who will be teaching in the first professional year in Fall 2016. As the curriculum fans out, second and then third professional year teaching faculty will be invited to participate within The Institute.

Content 11.1

PY1			PY2			PY3			PY4
FALL	SPRING		FALL	SPRING		FALL	SPRING		FALL/SPRING
Transitions in Pharmacy Cells & Molecules 3 (PHR 911-001) Foundations in Pharm Science I 3 (PHR 912-001) Wellness & Health Promotion I 3 (PHR 913-001) Clinical Reasoning 2 (PHR 914-001) Pharmacy as a Profession 5 (PHR 915-001)	IDD 1 (ID) 4 (PHR 926-001) IDD 1 (GI/Nutr) 2 (PHR 927-001) Kinetics and Dynamics 4 (PHR 921-001) Foundations in Pharm Science II 3 (PHR 922-001) Wellness & Health Promotion II 3 (PHR 923-001) Elective	STEP	IDD 2 (Neuro) 4 (PHR 936-001) IDD 2 (Rheum) 2 (PHR 937-001) IDD 2 (Endocrine) 4 (PHR 938-001) Policy, Outcomes & Public Health 3 (PHR 933-001) Elective	IDD 3 (Cardio) 6 (PHR 946-001) IDD 3 (GU) 2 (PHR 947-001) IDD 3 (Pulm) 3 (PHR 948-001) Leadership in Pharmacy 3 (PHR 945-001) Elective	STEP	IDD 4 (Psychiatry) 4 (PHR 956-001) IDD 4 (Oncology) 4 (PHR 957-001) Differential DX in Primary Care 2 (PHR 954-001) Scholarship I 3 (PHR 951-001) Elective	IDD 5 (Crit Care) 4 (PHR 966-001) PTx Applications in Special Pops 3 (PHR 967-001) Operations & Fin Mgmt 3 (PHR 964-001) EBM 1 (PHR 965-001) Scholarship II 3 (PHR 961-001) Elective	PCOA	Acute Care/Inpatient Advanced Hospital Ambulatory Care Advanced Community ELECTIVE ELECTIVE ELECTIVE
PaCE 1 (PHR 910-001)	PaCE 2 (PHR 920-001)	IPPE I *2 weeks Amb* *PHR 928-001* IPPE II *2 Weeks Inst* *PHR 929-001*	PaCE 3 (PHR 920-001)	PaCE 4 (PHR 920-001)		PaCE 5 (PHR 920-001)	PaCE 6 (PHR 920-001)		*APPE*
16	16	4	13	14		13	14		42