

UNIVERSITY OF KENTUCKY
APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR & MINOR

1. Submitted by **College of Pharmacy** _____ Date **10-25-02** _____
Department/Division offering course **Pharmaceutical Science** _____
2. Changes proposed:
 - (a) Present prefix and number **PHR 944** Proposed prefix and number **Same** _____
 - (b) Present Title: **BASIC PRINCIPLES OF PHARMACEUTICAL SCIENCE: NEW/NOVEL DOSAGE FORMS. (3)**

New Title **BASIC PRINCIPLES OF MEDICINAL CHEMISTRY**
 - (c) If course title is changed and exceeds 24 characters (including spaces), include a sensible title (not to exceed 24 characters) for use on transcripts:

_____ **BASIC PRIN OF MED CHEM** _____
 - (d) Present credits: **3** Proposed credits: **SAME** _____
 - (e) Current lecture:laboratory ratio **N/A** Proposed: _____
 - (f) Effective Date of Change: (Semester & Year) **SPRING 04** _____
3. To be Cross-listed as _____
(Prefix and Number) (Signature: Dept. Chair)
4. Proposed change in Bulletin description:
 - (a) Present description (including prerequisite(s):
PHR 944 BASIC PRINCIPLES OF PHARMACEUTICAL SCIENCE: NEW/NOVEL DOSAGE FORMS. (3)
The last course in a medicinal chemistry and pharmaceutics sequence, consisting of a discussion of in vivo testing to establish the bioequivalence of drug products, the application of physical-chemical principles to the formulation of pharmaceutical disperse systems, and a survey of modern drug delivery systems with a review of the scientific principles upon which they are based. Variable mixture of lecture, group discussion and independent study. Prereq: admission to the second year, College of Pharmacy.
 - (b) New description:
PHR 944 BASIC PRINCIPLES OF MEDICINAL CHEMISTRY. (3)
The rational design of molecules to produce safe and effective therapeutic responses in humans; molecular changes in drug molecules that affect affinity and activity at drug receptors and influence the absorption, distribution, metabolism, excretion and stability of drugs; and the properties of drug molecules which are important in their formulation into drug products. Variable mixture of lecture, group discussion and independent study. Prereq: admission to the second year, College of Pharmacy.
 - (c) Prerequisite(s) for course as changed: **SAME** _____
5. What has prompted this proposal?
The sequence of course topics in the three course sequence of 914, 924 and 944 was not as conducive to an integrated curriculum as hoped and did not provide the required basic information needed for parallel courses. It moves the medicinal chemistry components of 914 and 924 into 944.
6. If there are to be significant changes in the content or teaching objectives of this course, indicate changes: **See old and new course topics list for 944.**
7. What other departments could be affected by the proposed change? **None**

8. Is this course applicable to the requirements for at least one degree or certificate at the University of Kentucky? No **X**Yes
9. Will changing this course change the degree requirements in one or more programs?
X No Yes (If yes, attach an explanation of the change.)*
10. Is this course currently included in the University Studies Program? **X** No Yes (If yes, please attach correspondence indicating concurrence of the University Studies Committee.)
11. If the course is a 100-200 level course, please submit evidence (e.g. correspondence) that the Community College System has been consulted.
12. Is this a minor change? **X** No Yes (NOTE: See the description on this form of what constitutes a minor change. Minor changes are sent directly from the Dean of the College to the Chair of the Senate Council. If the latter deems the change not to be minor, it will be sent to the appropriate Council for normal processing.)
13. Within the Department, who should be consulted for further information on the proposed course change?

Name: **Dr. Peter Crooks** Phone Extension: **7-1718**

Signatures of Approval:

Department Chair: _____ Date: _____

Dean of the College: : _____ Date: _____

Date of Notice to the Faculty: : _____

**Undergraduate Council: : _____ Date: _____

**Graduate Council: : _____ Date: _____

**Academic Council for the Med. Ctr: _____ Date: _____

**Senate Council: _____ Date of Notice to Univ. Senate: _____

ACTION OTHER THAN APPROVAL: _____

*NOTE: Approval of this change will constitute approval of the program change unless other program modifications are proposed.

**If applicable, as provided by the Rules of the University Senate.

The Minor Change route for courses is provided as a mechanism to make changes in existing courses and is limited to one or more of the following:

- a. change in number within the same hundred series;
- b. editorial change in description which does not imply change in content or emphasis;
- c. editorial change in title which does not imply change in content or emphasis;
- d. change in prerequisite which does not imply change in content or emphasis;
- e. crosslisting of courses under conditions set forth in item 3.0;
- f. correction of typographical errors. [University Senate Rules, Section III - 3.1]

Revised PHR 944 Topics

Review of ADME processes

Medicinal Chemistry Implications on Drug Absorption

Entropy driven phenomena – hydrophobic bonding

Amphipathic molecules

- lipid bilayers

- liposomes

Biologic membranes (drugs-membrane permeability)

Medicinal Chemistry Implications on Drug Metabolism

Stereochemistry in drug action

Stereochemistry in drug disposition

Delivering a drug to its site(s) of action

Dipole moments

Polarity and polarizability

Hydrogen bonding

Hydrophilic polymers in pharmacy

Lipid solubility

Correlation of structure and reactivity

Mechanism of hydrolysis of esters, carbonates, carbamates and amides

Designing effective drug molecules

Drug design based on physicochemical properties

Drug design based on drug metabolism

Active site-directed inhibitors

Acetyl choline esterase inhibitors

Drug design-combinatorial chemistry

Antibiotics I: Chemistry and mechanism of action of penicillins

Antibiotics II: Mechanisms of bacterial resistance

Drug design –Genomics – Structure-based approaches

Antiviral Compounds: Mode of Action

Anti-AIDS Compounds: Protease inhibitors,

- reverse transcriptase inhibitors

Angiotensin Converting Enzyme Inhibitors

Nutraceuticals

Opiate Drugs: morphine and related compounds

Opiate receptors and stereochemistry

Cholinergic Drugs

Cox 2 inhibitors

Former PHR 944 Topics

Diffusion Mechanisms

Diffusion in Biological Systems

Polymers and Biomaterials

Formulation and Technical Approaches

Microparticulate Systems

Sasal Systems

Buccal Systems

Lipid-Based Drug Delivery Systems

Oral Solid Dosage Forms (powders)

Oral Solid Dosage Forms (capsules and tablets)

Oral Solid Dosage Forms (sustained release)

Principles of Parenterals

Contamination Control of Parenterals

Parenteral Formulation Strategies

Ophthalmic Products

Drug Delivery Pumps

Rectal/Vaginal Drug Delivery

Topical Drug Delivery

Aerosol Drug Delivery

Clinical and Regulatory Development of Biotechnology Products

Biotechnology Products and Types

Drug Targeting and Gene Delivery with Biotechnology Products