

1. General Information

1a. Submitted by the College of: MEDICINE

Date Submitted: 2/9/2016

1b. Department/Division: Molecular and Cellular Biochemistry

1c. Contact Person

Name: Peter Spielmann

Email: hps@uky.edu

Phone: 257-4790

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

1d. Requested Effective Date: Specific Term/Year¹ Spring 2016

1e. Should this course be a UK Core Course? No

2. Designation and Description of Proposed Course

2a. Will this course also be offered through Distance Learning?: No

2b. Prefix and Number: BCH 556

2c. Full Title: Principles of Drug Design

2d. Transcript Title:

2e. Cross-listing: PHS 556, CHE 580

2f. Meeting Patterns

LECTURE: 40

2g. Grading System: Letter (A, B, C, etc.)

2h. Number of credit hours: 3

2i. Is this course repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester?

*Revised
2/10/16*

2j. **Course Description for Bulletin:** Introduction to medicinal chemistry will be explored through rational biochemical and physical organic chemical approaches to drug design, action and development. Structural features, physical properties, mechanism of action and metabolism of drug like molecules, forces that govern interaction of drug-like molecules with their targets, enzyme mechanisms and inhibition and xenobiotic metabolism will be illustrated with specific examples showing how drugs function at the molecular level.

2k. **Prerequisites, if any:** CHE 230, CHE 232, BIO 148, BIO 152.

2l. **Supplementary Teaching Component:**

3. **Will this course taught off campus?** No

If YES, enter the off campus address:

4. **Frequency of Course Offering:** Spring,

Will the course be offered every year?: Yes

If No, explain:

5. **Are facilities and personnel necessary for the proposed new course available?:** Yes

If No, explain:

6. **What enrollment (per section per semester) may reasonably be expected?:** 20

7. **Anticipated Student Demand**

Will this course serve students primarily within the degree program?: Yes

Will it be of interest to a significant number of students outside the degree pgm?: Yes

If Yes, explain: This course is designed for advanced undergraduate students in biological, chemical and biopharmaceutical engineering disciplines and those headed for pre-professional programs in medicine, dentistry or pharmacy, students in PhD programs who desire a firm grasp of mechanistic enzymology and enzyme inhibition as well as an introduction to the physical organic chemistry of drug discovery.

8. **Check the category most applicable to this course:** Relatively New – Now Being Widely Established,

If No, explain:

9. **Course Relationship to Program(s).**

a. **Is this course part of a proposed new program?:** No

If YES, name the proposed new program:

b. **Will this course be a new requirement for ANY program?:** No

If YES, list affected programs:

10. **Information to be Placed on Syllabus.**

a. **Is the course 400G or 500?:** Yes

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: Yes

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|DANDRES|Douglas A Andres|BCH 556 NEW Dept Review|20150422

SIGNATURE|DANDRES|Douglas A Andres|BCH 556 ZCOURSE_NEW Approval Returned to Dept|20150514

SIGNATURE|DDBEAT1|Dorcas D Beatty|BCH 556 NEW College Review|20150514

SIGNATURE|JMETT2|Joanie Ett-Mims|BCH 556 NEW Undergrad Council Review|20150514

SIGNATURE|JMETT2|Joanie Ett-Mims|BCH 556 NEW Undergrad Council Review|20151216

SIGNATURE|ZNNIKO0|Roshan N Nikou|BCH 556 NEW Graduate Council Review|20160129

SIGNATURE|JEL224|Janie S Ellis|BCH 556 NEW Senate Council Review|20160209

SIGNATURE|DANDRES|Douglas A Andres|BCH 556 NEW Approval Returned to Dept|20160210

New Course Form

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

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Attachments:

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	ID	Attachment
Delete	4922	Dziubla letter BCH 556.docx
Delete	5223	Peter Spielmann 2015 04 19-1.pdf
Delete	5224	Spielmann sup let BCH 556 070915.docx

First 1 2 3 Last

(*denotes required fields)

1. General Information

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- b. * Department/Division:
- c.
- * Contact Person Name: Email: Phone:
- * Responsible Faculty ID (if different from Contact): Email: Phone:
- d. * Requested Effective Date: Semester following approval OR Specific Term/Year ¹
- 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:
- c. * Full Title:
- d. Transcript Title (if full title is more than 40 characters):
- 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 hours³ for each meeting pattern type.
- | | | | |
|--|--|-------------------------------------|-------------------------------------|
| <input checked="" type="checkbox"/> 40 Lecture | <input type="checkbox"/> Laboratory ¹ | <input type="checkbox"/> Recitation | <input type="checkbox"/> Discussion |
| <input type="checkbox"/> Indep. Study | <input type="checkbox"/> Clinical | <input type="checkbox"/> Colloquium | <input type="checkbox"/> Practicum |
| <input type="checkbox"/> Research | <input type="checkbox"/> Residency | <input type="checkbox"/> Seminar | <input type="checkbox"/> Studio |
| <input type="checkbox"/> Other | If Other, Please explain: <input type="text"/> | | |
- 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:
- 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:

Introduction to medicinal chemistry will be explored through rational biochemical and physical organic chemical approaches to drug design, action and development. Structural features, physical properties, mechanism of action and metabolism of drug like molecules, forces that govern interaction of drug-like molecules with their targets, enzyme mechanisms and inhibition and xenobiotic metabolism will be illustrated with specific examples showing how drugs function at the molecular level.

k. Prerequisites, if any:

CHE 230, CHE 232, BIO 148, BIO 152.

l. Supplementary teaching component, if any: Community-Based Experience Service Learning Both3. * 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 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? 20

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:

This course is designed for advanced undergraduate students in biological, chemical and biopharmaceutical engineering disciplines and those headed for pre-professional programs in medicine, dentistry or pharmacy,

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 requirement⁵ for ANY program? Yes No

If YES⁵, list affected programs:

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

b. * The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable above) are attached.

⁵ Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.

⁶ The chair of the cross-listing department must sign off on the Signature Routing Log

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, is two hours per week for a semester for one credit hour. (from SR 6 2 1)

You must also submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.

In order to change a program, a program change form must also be submitted.

Rev 8/09



University of Kentucky

College of Pharmacy

July 9, 2015

Pete Spielmann
Molecular and Cellular Biochemistry
University of Kentucky Medical College
hps@uky.edu

Joe Chappell, Professor & Chair
George A. Digenis Professor of Drug Design
& Discovery
Department of Pharmaceutical Sciences
789 South Limestone Street
Lexington, KY 40536-0082
Office: (859) 218-0775
Cell phone (859) 536-4593
chappell@uky.edu

Re: Support for BCH 556/PHS 556 Principles of Drug Design

Dear Dr. Spielmann:

First and foremost, I would like to thank you for keeping informed as you have conceptualized and subsequently assembled this new course proposal. You had informed of the idea for this course after you had interacted and spoken with Sylvie Garneau-Tsodikova in my department and David Watt in your department. Both of these individuals were enthusiastic and wanted to assist you in developing this proposed course. You have also keep me informed of all the parties across the entire UK campus you have consulted. You have done this to assure that the course was designed to meet a need, but also so that it complemented and extended efforts elsewhere on campus. An excellent example of this is the communication you have had with Art Cammers in the Chemistry Department who is in charge of their undergraduate curriculum.

I enthusiastically support this proposed course for several reasons. First, it is a new upper division course that will provide the chemically and biologically oriented students a new perspective on the fusion of these two disciplines. Second, as faculty member associated with the Ag. Biotech program and as a Department Chair that aims to recruit UK students for our professional (Pharm. D.) and graduate programs, this is a course many of these students have been asking for - for a long time. Lastly, you have constructed this course to really help the students see the emergence of the new "Chemical Biology" frontiers, which promises immense practical and fundamental opportunities for discovery research going into the future.

I do hope the various undergraduate and course review councils will see the value of this course and recommend its rapid approval.

Very sincerely,

Joe Chappell

Arthur Cammers
Assoc. Prof., Dir. of Undergraduate Studies
Department of Chemistry, Lexington KY 40506-0055
Phone 859 323-8977 Email: a.cammers@uky.edu
Sunday, April 19, 2015



Department of Chemistry
Chemistry-Physics Building
Lexington, KY 40506-0055
www.chem.uky.edu

Peter Spielmann, Ph.D.
Molecular and Cellular Biochemistry
University of Kentucky College of Medicine

Dear Peter:

UK A&S Chemistry supports your teaching of *Principles of drug design*, BCH 556 /PHS 556 (cross listed with Pharmacy). We do not feel this course will be redundant as it does not overlap any of our course offerings. The course appears to cover a branch of medicinal chemistry that is usually covered in graduate school in specific groups developing small-molecule medicines. We see your proposed class as finishing school for CHE 535, Synthetic Organic Chemistry and we view your proposed class as supportive and application-related to the instruction in Biological Chemistry CHE 550 and CHE 552.

An undergraduate with sufficient background and interest could take *Principles of Drug Design and Drug Action* and fulfill a major field elective. We think that *Principles of Drug Design ...* is a good addition to the course offerings at UK.

Sincerely

A handwritten signature in black ink, appearing to read "Arthur Cammers". The signature is written in a cursive style with a long, sweeping underline.

Arthur Cammers

blue.

From: "Dziubla, Thomas D" <thomas.dziubla@uky.edu>
To: "Spielmann, H. P" <hps@uky.edu>
Subject: RE: New med chem course
Thread-Topic: New med chem course
Thread-Index: AQHQdsBC8P4eYT5djkmQQ1DnnVz8zg==
Date: Tue, 14 Apr 2015 10:35:30 -0400
Accept-Language: en-US

Hi Pete,
I received feedback and the course is perfect as an elective in our biopharma track.
Thanks
Tom

-----Original Message-----

From: Spielmann, H. P
Sent: Thursday, April 9, 2015 4:26 PM
To: Dziubla, Thomas D
Subject: RE: New med chem course

Hi Tom,,

The Chemistry faculty have agreed to put this class forward so I am trying to get all of my ducks in a row. When will the biopharm committee meet? If they are not meeting soon, is it possible to pass the proposal to them individually? I want to get the course proposal submitted before everyone leaves for the summer. Thanks for your support.

XXOO Pete

>Hi Pete,
>Thanks for the email.
>I've read through the syllabus and found it to be very interesting and
>I believe extremely relevant to our biopharmaceutical engineering track
>students. This track is a supplemental offering made available to our
>chemical engineering students. We admit
>~10-15 students per year into the track. Students will apply their
>sophomore year and must have a GPA of 3.3 or better, and receive a B or
>better in CME 200 (Process principles). The track is meant to expose
>students to topics relevant to the pharmaceutical field.
>Currently students will take PHS 914, 924, PGY206, Biochemistry, a
>course of GMP and 2 bio related CME courses. However, there are
>course changes coming down the pike and PHS 924 is likely going away as
>a course offering. As such, there is a need for a course to fill in
>this role. I had thought a medchem course would be great, but at the
>time none was available on campus.
>
>I will forward the syllabus to the biopharm committee and get their
>feedback to see if they agree that your course would be a perfect fill
>for this class.
>
>Best wishes,
>Tom

>
>

>PS: Please feel free to use this email as a letter of support.

New Course Form

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

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- ▣ 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, is two hours per week for a semester for one credit hour. (from SR 5.2.1)
- ▣ You must also submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.
- ▣ In order to change a program, a program change form must also be submitted.

Rev 8/09