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College of PHARMACY
UNIVERSITY OF HOUSTON

Proposal for a New Undergraduate Degree Program leading to the Bachelor of Science in the Pharmaceutical Sciences

Proposed Implementation: Fall 2007

Bachelor of Science degree in
Pharmaceutical Sciences

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New Program Request Form for Bachelor and Master's Degrees

Directions: An institution shall use this form to propose a new bachelor's or master's degree program. In completing the form, the institution should refer to the document *Standards for Bachelor's and Master's Programs*, which prescribes specific requirements for new degree programs. Note: This form requires signatures of (1) the Chief Executive Officer, certifying adequacy of funding for the new program; (2) a member of the Board of Regents (or designee), certifying Board approval, and (3) if applicable, a member of the Board of Regents or (designee), certifying that criteria have been met for staff-level approval. Note: An institution which does not have preliminary authority for the proposed program shall submit a separate request for preliminary authority. That request shall address criteria set in Coordinating Board rules Section 5.24 (a).

Information: Contact the Division of Academic Affairs and Research at 512/427-6200 for more information.

Administrative Information

1. Institution: University of Houston

2. Program Name – Show how the program would appear on the Coordinating Board's program inventory (*e.g., Bachelor of Business Administration degree with a major in Accounting*):
Bachelor of Science degree in Pharmaceutical Sciences

3. Proposed CIP Code:

4. Brief Program Description – Describe the program and the educational objectives:
The Bachelor of Science in Pharmaceutical Sciences graduates will attain a level of knowledge in mathematics, science, communication, and health-related disciplines for understanding the principles and concepts of the pharmaceutical sciences including pharmacology, pharmaceutics, pharmacokinetics, and health outcomes. Specifically these education objectives include:
Understanding chemical, biochemical, and metabolic properties of the major drug classes
Rational drug design and synthesis
Isolation, quantification, and structural elucidation of drugs of natural or synthetic origin
Preparation and stability of suitable drug delivery systems
Evaluation of effectiveness of drug delivery to the site of action
Therapeutic, adverse and toxic effects of the major drug classes
Experimental design, research methodology, and interpretation of results
and
Management, behavioral, pharmacoeconomic principles affecting marketing and distribution of pharmaceuticals and pharmaceutical services.

5. Administrative Unit – Identify where the program would fit within the organizational structure of the university (*e.g., The Department of Electrical Engineering within the College of Engineering*): College of Pharmacy

6. Proposed Implementation Date – Report the first semester and year that students would enter the program: Fall 2007

7. Contact Person – Provide contact information for the person who can answer specific questions about the program:

Name: Shara L. Zatopek

Title: Associate Dean for Administration

E-mail: szatopek@uh.edu

Phone: 713.743.1262

PROGRAM INFORMATION

BSPS PROGRAM
Bachelor of Science in the Pharmaceutical Sciences

INTRODUCTION

The College of Pharmacy proposes to implement a new undergraduate degree program leading to the Bachelor of Science in the Pharmaceutical Sciences (BSPS). This program would complement ongoing and developing professional and graduate programs within the College of Pharmacy as well as University initiatives and interdisciplinary programs directed at cultivating interest in graduate or professional education. Additionally, this program offers a degree option for the many prepharmacy students. The proposed BSPS program will incorporate unique educational experiences for the undergraduate student with an emphasis in the pharmaceutical sciences.

It is anticipated that the majority of the students who enter the proposed program will pursue health-related careers. BSPS graduate will be prepared to enter professional degree programs in the health sciences (e.g. dentistry, medicine, optometry, pharmacy, veterinary medicine) or law. In addition, BSPS students will be prepared for M.S. and Ph.D. programs in the pharmaceutical sciences (i.e. medicinal chemistry, pharmacognosy, pharmaceutics and pharmaceutical chemistry, pharmacology,

toxicology, pharmacy administration, or health outcomes) or in pharmaceutical companies engaged in the discovery, development, and/or marketing of drugs. This program would not qualify its graduates to take licensure examinations to become a registered pharmacist.

The proposed Bachelor of Science in the Pharmaceutical Sciences degree program is a four-year curriculum based upon a foundation of courses in biology, chemistry, and mathematics. This foundation is followed by studies in the areas of pharmaceutical science, including drug discovery, drug delivery, drug action, drug distribution, health outcomes, and management. These will entail instruction in the disciplines of medicinal chemistry, pharmaceutics, pharmaceutical chemistry, pharmacology, toxicology, and pharmacy administration. An overriding theme in the development of the BSPS curriculum has been flexibility with ample time for electives. This is designed to afford students the opportunity to construct a program which best meets their individual needs and goals.

PROCESS FOR PROPOSAL DEVELOPMENT

The preparation of this document originated with a twelve month effort by an *ad hoc* Bachelor of Science in the Pharmaceutical Sciences (BSPS) Committee appointed by the College Dean with support from the College's Curriculum Committee. The *ad hoc* committee included four faculty members from the College of Pharmacy's two departments, Pharmacy and Pharmaceutical Sciences (PPS) – three members, and Clinical Sciences and Administration (CSA) – one member. The Associate Dean for Administration chaired the committee and also is a member of the CSA department. The faculty Undergraduate Council Representative also served as an *ex-officio* member and is a member of the CSA department. The document was furthered reviewed and refined by the College's Curriculum Committee. The College Dean's Advisory Council composed of alumni and business leaders in the profession also offered input to the committee April 21, 2006. The final proposal was approved by the faculty on August 3, 2006 and was preceded by the following faculty approvals:

(1) Long-range university strategic initiative, FY2006 to offer additional degrees – University Strategic Principle 1. Institutional Excellence, Initiative 4
(2) The implementation of the BSPS is a component of the College's 2005 strategic plan, October 25, 2005.
(3) BSPS curricular outline approval on April 25, 2006
(4) BSPS program plan outline approval on May 15, 2006.

After receiving approval from the faculty, the program was submitted to Undergraduate Council October, 2006. The projected start date for the BSPS Program is fall 2007.

The *ad hoc* BSPS Committee sought and received input from a number of sources. This included input from pharmaceutical industry representatives who judged

the rigor of the proposed curriculum in line with the expectations of a natural science degree and pharmaceutical and drug knowledge adds value to the degree.

Input from academics included discussions with prepharmacy and pre-graduate health advisors. The College's academic advisors also contributed. These groups indicated the proposed curriculum to be a viable option for pre-health profession students. Additionally, the Dean of Natural Sciences & Mathematics supports the program. This group also solicited feedback from graduate and undergraduate students including prepharmacy students.

Degree Plan Proposal

General Information

The purpose of the BSPS program is to provide undergraduate students with educational experiences and training in the pharmaceutical and related health sciences. The pharmaceutical sciences include medicinal chemistry pharmaceutics, pharmacology, toxicology, pharmacy administration and health outcomes.

General Goals and Objectives:

The BSPS program will provide students the opportunity to develop capabilities in the following general areas:

General Education: BSPS graduates will complete the State mandated core curriculum. We propose to observe the core curriculum requirements currently in place for undergraduates at the University.

Knowledge:

Science: Comprehension of scientific methods and principles, analysis of information and laboratory data, and their use in the discovery of knowledge.

Mathematics: Utilization of mathematical principles to analyze physical, biological, and socioeconomic phenomena.

Communication: Ability to read, write, speak, and listen effectively.

Abilities: Development of logical and analytical reasoning, critical thinking, problem-solving, and decision-making.

Specific Goals and Objectives:

BSPS graduates will attain a level of knowledge in mathematics, science, and health-related disciplines appropriate for understanding the principles of the pharmaceutical

sciences. Required courses in biology, microbiology, calculus, and general and organic chemistry will serve as the foundation for subsequent core courses in the following disciplines:

- Pharmacology
- Pharmaceutics
- Pharmacokinetics
- Medicinal Chemistry.

The diversity of courses offered and scope of faculty expertise in these disciplines will allow students to tailor a course of study uniquely suited to their own needs and goals. However, each student will learn and utilize the following core concepts and principles throughout the curriculum:

- Chemical, biochemical, and metabolic properties of the major drug classes
- Rational drug design and synthesis
- Isolation, quantification, and structural elucidation of drugs of natural or synthetic origin
- Preparation and stability of suitable drug delivery systems
- Evaluation of effectiveness of drug delivery to the site of action
- Therapeutic, adverse and toxic effects of the major drug classes
- Management, behavioral, and pharmacoeconomic principles affecting marketing and distribution of pharmaceuticals and pharmaceutical services
- Experimental design, research methodology, and interpretation of results.

College and University Goals

The implementation of a Bachelor of Science in the Pharmaceutical Sciences program is consistent with the mission and goals of the University of Houston in general and its College of Pharmacy in particular. The College refers to their 2005 Strategic Plan Initiative 6B, "Expansion of Education and Research Opportunities". (Appendix A)

The College's goal correlates with the following goals from the University's Strategic Principles and Initiatives. (Appendix B)

- Strategic Principle 1.1 Increase the number of faculty on campus to enhance academic and research excellence and accommodate enrollment growth. Revenue generated from additional undergraduate tuition is targeted for adding new research faculty members.
- Strategic Principle 1.4 Systematically explore the development of new programs relevant to the needs of the Houston metropolitan area and the upper Gulf Coast region. The BSPS graduates will augment the skilled workforce in the pharmaceutical and health-care industries within the greater Houston area and state.

According to the College's Dean's Advisory Council, the BSPS program compliments both the university and college strategic plans by providing a quality tool and an opportunity for students to prepare themselves for graduate or professional education in science or health-related disciplines in a distinctive way and it strengthens the quality of our graduate academic programs in the sciences and professions. Program strengths identified by the Council lay in the flexibility of the program to be a stand-alone degree or a foundation for entry into the professional or graduate programs. The program is designed to provide new revenue streams to hire additional faculty that will support teaching and conduct research. (Appendix C)

Relationship to Other Programs

The BSPS program would be unique within the State of Texas. The following pharmacy colleges currently offer the BSPS degree:

- University of Buffalo, State University of New York
- Campbell University, School of Pharmacy
- University of Connecticut, School of Pharmacy
- Drake University, College of Pharmacy and Health Sciences
- University of Mississippi, School of Pharmacy
- University of Missouri-Kansas City, School of Pharmacy
- University of New York, School of Pharmacy Pharmaceutical Sciences
- Ohio State University, College of Pharmacy
- University of the Sciences in Philadelphia, Philadelphia College of Pharmacy
- Purdue University, School of Pharmacy
- St. Louis College of Pharmacy
- University of Toledo, College of Pharmacy
- Union University, Albany College of Pharmacy
- University of Wisconsin-Madison, School of Pharmacy.

I. Need

A. Job Market Needs

Pharmaceutical Sciences graduates may find opportunities in university, hospital or pharmaceutical industry or pursue graduate studies leading to professional degrees (i.e. Pharm.D., M.D., D.D.S.) or graduate degrees (i.e. M.S. Pharmacy Administration, and M.S. or Ph.D degrees).

The Pharmaceutical Sciences program prepares students to work in many career areas within the pharmaceutical industry. Some of these areas are drug discovery, pharmaceutical formulations, clinical manufacturing/process improvement, pharmacokinetics and metabolism, drug safety and surveillance, regulatory affairs, and drug information specialists. According to the Annual Employment Survey conducted by the American Association of Pharmaceutical Scientists, a person with a BS and 0-5 years of experience, can anticipate an average salary of $42,000 with the pharmaceutical industry and the pharmaceutical industry hired about 900 people with BS degrees in the

basic sciences in the previous year and projects to hire about 1000 people with BS degrees in the upcoming year.

Merck Recruiting and Staffing specialist, Don Baglivo, indicates via his email dated August 29, 2006 that Merck The Neuroscience and Imaging Drug Discovery team, is hiring B.S. graduates with the proposed degree. Centocor, Inc., a biomedicine company in the Houston area, reports a need to hire graduates with the BSPS academic background. A Texas Medical Center research company, Encysive indicates a continued need for qualified researchers as well as lab assistants and believes a BSPS graduate will be a competitive, potential employee. (Appendix D)

B. Student Demand

A fall 2006 poll of the prepharmacy class, PHAR 2200 Introduction to Pharmacy, indicated that 10 students (one-third of the class) would consider the B.S. Pharmaceutical Sciences as a degree alternative if not admitted into the professional PharmD program. Additionally, three non-UH students indicate they would consider the B.S. in Pharmaceutical Sciences as a degree option.

The college intends to market the program to prepharmacy students at the University of Houston that have cumulative grade-point-averages above 2.70. Additionally, as candidates are denied admissions into the PharmD professional program, recruitment/marketing letters will be mailed to this pool of applicants. Once the degree is approved, marketing will commence and coupled with the preceding initiatives, we believe it is reasonable to expect that ten students will initially enroll in the program.

Dr. William R. Doucette, Associate Professor at University of Iowa College of Pharmacy, indicates the BSPS graduate would be a valuable source of applicants for a Ph.D. Program in Pharmaceutical Socioeconomics at Iowa. Additionally, Dr. Harvey Rappaport, Coordinator of Graduate Programs at the University of Louisiana at Monroe suggests the BSPS graduate would be ideally suited for masters and PhD programs in Pharmacy Administration. He further indicates a strong demand for researchers in pharmacy administration in both public and private sectors and the proposed BS program will serve undergraduate training needs of this workforce.

Dr. John L. Bear, Dean of the College of Natural Sciences and Mathematics, believes the BSPS program will enhance undergraduate education and research here at the University and appeal to a broader range of prospective undergraduate students. The program broadens current elective opportunities and complements existing basic science biology and biochemistry programs already in place. (Appendix E)

C. Enrollment Projections

For students, the BSPS will offer the opportunity for studies in the exciting areas of drug discovery, delivery, and distribution. The curriculum constitutes an outstanding and distinctive preparation for graduate or professional educational programs, and it also will provide training for entrance into the workforce within the pharmaceutical and health-care industries.

BSPS Enrollment Projections (**Final 2 years**)

Year	2007	2008	2009	2010	2011
Total Headcount	10	50	115	150	150
FTSE*	10	50	115	150	150

*Full-time student equivalent (FTS)

The pool of interested students would likely be drawn from those interested in pursuing health science-related careers at the baccalaureate level; graduate degrees within the areas of the pharmaceutical or related sciences; or professional programs of study such as those in dentistry, law, medicine, optometry, pharmacy or veterinary medicine. It is estimated that the majority of students admitted to the BSPS program will enroll at the University of Houston for pre-BSPS studies. Some will likely transfer from other colleges or universities. The College will implement significant efforts to market the program to prospective students at the secondary and postsecondary levels.

Pharm.D. applications within the University of Houston students have remained steady at a rate of approximately 140 per year. About fifteen percent of these students are accepted into the UH College of Pharmacy professional program. Those students denied admissions into the professional program constitute a strong pool of applicants for this proposed program. In reviewing college data, the students not accepted into the professional program meet the criteria for admissions into the BSPS program. This pool of students will have completed the preBSPS curriculum requirements (years one and two) and meets the 2.70 cumulative GPA or higher required for formal admissions into the final two years of the program. Over 90% of these students met the GPA requirement for BSPS admissions. Additionally, there are approximately 700 declared prepharmacy students on campus. The BSPS program would provide an alternative degree option for these students.

II. Quality

A. Degree Requirements

BSPS Degree Curriculum Requirements Summary

Category	Semester Credit Hours	Clock Hours
A. General Education Core Curriculum	36 - 43	36 - 43
B. Required Courses	57	57
C. Prescribed Electives	11 - 17	11 - 17
D. Free Electives (maximum 6 SCH)	0 - 6	0 - 6
E. Other - Lab	9	27
TOTAL	119 - 126	137 - 144

B. Curriculum

Prefix and Number	General Education Core Curriculum	SCH
	University Core	
ENGL 1303	English Composition I	3
ENGL 1304	English Composition II	3
HIST 1377	The United States to 1877 or equivalent	3
HIST 1378	The United States since 1878 or equivalent	3
POLS 1336	U.S. & Texas Constitution/Politics	3
POLS 1337	U.S. Government: Congress, President & Courts	3
MATH 1330	Pre-Calculus or credit by examination	3 or credit
MATH 1431	Calculus I or credit by examination	4 or credit
BIOL 1361	Introduction to Biological Science I	3
BIOL 1362	Introduction to Biological Science II	3
Social Science PSYC 1300 SOC 1300 ECON 2311	Choose one of the following: Introduction to Psychology Introduction to Sociology Economic Concepts and Issues	3
Social Science	Writing Intensive Social Science See UH Approved List	3
Humanities	See UH Approved List	3
Visual & Performing Arts	See UH Approved List	3
	TOTAL	**36 - 43**

Prefix and Number	College Required Courses	SCH
BIOL 2333	Elementary Microbiology	3
CHEM 1331	Fundamentals of Chemistry I	3
CHEM 1332	Fundamentals of Chemistry II	3
CHEM 3331	Fundamentals of Organic Chemistry I	3
CHEM 3332	Fundamentals of Organic Chemistry II	3
PHAR 2362	Principles of Drug Action	3
PCOL 4131	Drug Uses and Abuses	1
PHSC 3100*	Career in Pharmaceutical Sciences Seminar	1
PHSC 3101*	Chemical Functional Group Analysis	1
PHSC 3200*	U.S. Health Care Systems	2
PHSC 3300*	Human Physiology and Pathophysiology I	3
PHSC 3301*	Dosage Forms I & Calculations	3
PHSC 3302*	Immunopharmacology	3
PHSC 3303*	Dosage Forms II and Biopharmaceutics	3
PHSC 3400*	Human Physiology and Pathophysiology II	4

PHSC 3401*	Biochemical Principles	4
PHSC 4100*	Advances in Pharmaceutical Sciences I – Drug Literature	1
PHSC 4101*	Advances in Pharmaceutical Sciences II- Drug Literature	1
PHSC 4200*	Pharmacoepidemology	2
PHSC 4300*	Biostatistics and Experimental Design	3
PHSC 4301*	Medicinal Chemistry I	3
PHSC 4400*	Pharmacology I	4
	TOTAL REQUIRED COLLEGE	57

*New courses

Prefix and Number	Prescribed Elective Courses	SCH
PHSC 3201*	Community Health	2
PHSC 3202*	Drug Information	2
PHSC 4201*	Pharmaceutical Systems Management	2
PHSC 4202*	Medicinal Chemistry II	2
PHSC 4203*	Toxicology	2
PHSC 4302*	Pharmaceutical Outcomes Management	3
PHSC 4303*	Healthcare & Pharmaceutical Promotion	3
PHSC 4304*	Pharmacokinetics	3
PHSC 4305*	Regulatory Affairs	3
PHSC 4401*	Pharmacology II	4
PHYS 1301	Introductory to General Physics	3
BIO 3301 & 3201	Genetics & Laboratory	5
CHEM 4373	Survey of Physical Chemistry I	3
	TOTAL ELECTIVE SCH Required	**17**

*New Courses

Prefix and Number	Free Elective Courses	SCH
	No more than six semester credit hours may be chosen from this category	
PHSC 3296*	Senior Research Project	2
PHSC 3298*	Special Problem in Pharmaceutical Sciences	2
PHSC 3396*	Senior Research Project	3
PHSC 3398*	Special Problem in Pharmaceutical Sciences	3
PHSC 3399*	Senior Honor Thesis	3
PHSC 3498*	Special Problems in Pharmaceutical Sciences	4
PHSC 4298*	Special Problems in Pharmaceutical Sciences	2

PHSC 4396*	Senior Research Project	3
PHSC 4398*	Special Problems in Pharmaceutical Sciences	3
PHSC 4399*	Senior Honor Thesis	3

*New Courses

Prefix and Number	Other - Labs	SCH
BIOL 1161	Introduction to Biological Science I Laboratory	1
BIOL 1162	Introduction to Biological Science II Laboratory	1
BIOL 2133	Elementary Microbiology Laboratory	1
CHEM 1111	Fundamentals of Chemistry I Laboratory	1
CHEM 1112	Fundamentals of Chemistry II Laboratory	1
CHEM 3221	Fundamentals of Organic Chemistry I Laboratory	2
CHEM 3222	Fundamentals of Organic Chemistry II Laboratory	2
	TOTAL LABS	**9**

Proposed new courses* include:

PHSC 3100 Careers in Pharmaceutical Sciences
An overview of various career opportunities in the pharmaceutical sciences, presented by professionals in those areas.

PHSC 3101 Functional Group Analysis
The role of organic functional groups on drug action; an introduction to medicinal chemistry.

PHSC 3200 U.S. Health Care Systems
U.S. health care systems with an emphasis on medication use in healthcare.

PHSC 3201 Introduction To Community Health
Introduction to public health concepts and its application to pharmaceutical products and services.

PHCS 3202 Drug Information
Basic drug information to locate and analyze literature in the pharmaceutical sciences by using tertiary, secondary, and primary literature sources.

PHCS 3296 Senior Research Project
Directed research culminating in a departmentally approved report.

PHSC 3298 Special Problems in Pharmaceutical Sciences
Supervised research experience in pharmaceutical sciences.

PHSC 3300 Human Physiology and Pathophysiology I
The principles of physiology and pathophysiology of excitable cells of the central and peripheral nervous systems; mechanisms of control by the central nervous system of visceral functions, posture and movement.

PHSC 3301 Dosage Forms and Calculations
Physiochemical properties of drugs and their dosage forms with emphasis on solution chemistry, solid dosage forms and an introduction to biopharmaceutics.

PHCS 3302 Immunopharmacology
A study of human immunology and genetics as it relates to normal body function and treatment of disorders of the immune system.

PHSC 3303 Dosage Forms II and Biopharmaceutics
Dispersed drug formulations, radiopharmaceuticals and the role of biotechnology and pharmacogenomics in drug formulation and delivery.

PHCS 3396 Senior Research Project
Directed research culminating in a departmentally approved report.

PHSC 3398 Special Problems in Pharmaceutical Sciences
Supervised research experience in pharmaceutical sciences.

PHSC 3399 Senior Honors Thesis
Directed research culminating in a Senior Honors Thesis.

PHSC 3400 Human Physiology and Pathophysiology II
Human physiology and pathophysiology of cardiovascular, respiratory, renal, gastrointestinal, reproductive, and endocrine systems.

PHCS 3401 Biochemical Principles
Fundamentals of protein, lipid and carbohydrate biochemistry as the basis for the study of drug action.

PHCS 3498 Special Problems in Pharmaceutical Sciences
Supervised research experience in pharmaceutical sciences.

PHCS 4100 Advances in Pharmaceutical Sciences I
A critical review of the literature published in pharmaceutical sciences, including presentation, analysis and appraisal of selected publications.

PHSC 4101 Advances in Pharmaceutical Sciences II
A critical review of the literature published in pharmaceutical sciences, including presentation, analysis and appraisal of selected publications.

PHSC 4200 Pharmacoepidemiology
Epidemiological concepts and its aplication to pharmaceutial sciences.

PHSC 4201 Pharmaceutical Systems Management
Financial, human, and systems management related to pharmaceutical organizations.

PHSC 4202 Medicinal Chemistry II
An introduction to the chemistry of drugs used to simulate or antagonize endogenous hormones, and for the treatment of diseases, including infections, anxiety, convulsions, psychosis, depression, ADHD, obesity, and degenerative diseases.

PHSC 4203 Toxicology
Basic toxicology of therapeutic agents, environmental agents, and drug and substances of abuse.

PHCS 4298 Special Problems in Pharmaceutical Sciences
Supervised research experience in pharmaceutical sciences.

PHSC 4300 Biostatics and Experimental Design
An introduction to statistical concepts for analyzing data in pharmaceutical sciences.

PHCS 4301 Medicinal Chemistry I
Introduction to the chemistry of drugs used to modulate the autonomic nervous system, and for the treatment of diseases, including allergic disorders, asthma, cancer, pain and heart disease.

PHSC 4302 Outcomes Management
Principles and practices of pharmaceutical outcomes management.

PHSC 4303 Pharmaceutical Marketing
Marketing techniques and strategies in healthcare with an emphasis on pharmaceutical products and services.

PHSC 4304 Pharmacokinetics
A study of the kinetic processes of drug absorption, distribution, metabolism and excretion, the effect of disease on drug response and pharmacokinetics.

PHCS 4305 Regulatory Affairs
Various aspects of regulatory affairs in clinical pharmacokinetic evaluations and FDA requirements for approvals of new drugs and generic products.

PHCS 4396 Senior Research Project
Directed research culminating in a departmentally approved report.

PHSC 4398 Special Problems in Pharmaceutical Sciences
Supervised research experience in pharmaceutical sciences.

PHSC 4399 Senior Honors Thesis
Directed research culminating in a Senior Honors Thesis.

PHSC 4400 Pharmacology I
Introduction to the study of the mechanism of action of drugs used to modulate the autonomic nervous system, and for the treatment of diseases, including allergic disorders, asthma, cancer, pain and heart disease.

PHSC 4401 Pharmacology II
Introduction to the mechanism of action of drugs used to simulate or antagonize endogenous hormones, as well as for the treatment of infections, anxiety, convulsions, psychosis, depression, ADD/obesity, and degenerative diseases.

Recommended Degree Plan (Appendix F)

C. Faculty

For the two year phase-in of the BSPS program, current faculty will increase individual teaching loads to accommodate teaching the new curriculum. As new faculty are hired and the BSPS enrollment increases, new faculty will assume more teaching responsibility in the program and current faculty teaching loads will be returned to average levels.

Name of Core Faculty and Faculty Rank	Highest Degree and Awarding Institution	Courses Assigned In Program	% Time Assigned To Program
Alkadhi, Karim Associate Professor	Ph.D. State University of New York at Buffalo	PHSC 3300 PHSC 4203	20%
Bikram, Liz Assistant Professor	Ph.D. University of Utah	PHSC 3100 PHSC 4304	30%
Chow, Diana Associate Professor	Ph.D. University of Columbia Vancouver, B.C.	PHSC 3304 PHSC 4304	20%
Eikenburg, Doug Associate Professor	Ph.D. Michigan State University	PHSC 4400 PHSC 4401	20%
Gupta, Vishnu D. Professor	Ph.D. University of Georgia	PHSC 3302 PHSC 3303	15%
*Hatfield, Catherine Clinical Assist. Prof.	Pharm.D. The University of Texas at Austin	PHSC 3202	25%
Hu, Ming Professor	Ph.D. University of Michigan	PHSC 4101 PHSC 3302	15%

Lau, Vincent Professor & Chair	Ph.D. University of Hawaii	PHSC 4203 PHSC 4400 PHSC 4401	15%
Schwarz, Lindsay Visiting Assistant Prof.	Ph.D. The University of Texas Medical Branch at Galveston	PHSC 3400 PHSC 4400 PHSC 4401 PHSC 3303	40%
*Williams, Lou Associate Professor	Ph.D. University of Pittsburgh	PHSC 3101 PHSC 4301 PHSC 4202	50%
New Faculty in Year 2007 TWO	To be hired	PHSC 4301 PHSC 4202 PHSC 3300 PHSC 3400 PHSC 3101	30%
New Faculty in Year 2008 TWO	To be hired	PHSC 4131 PHSC 3401 PHSC 4400	30%
New Faculty in Year 2009 ONE	To be hired	PHSC 3302 PHSC4401	30%

*Administrative Responsibility

Name of Support Faculty and Faculty Rank	**Highest Degree and Awarding Institution**	**Courses Assigned In Program**	**% Time Assigned To Program**
Aparasu, Rajender Professor	Ph.D. University of Louisiana	PHSC 3200 PHSC 3201	10%
Bond, Richard Associate Professor	Ph.D. University of Houston	PHSC 3302 PHSC 4401	10%
Chen, Hua Assistant Professor	Ph.D. University of Georgia	PHSC 4200	10%
Hussain, Tahir Assistant Professor	Ph.D. Aligarh Muslim University India	PHSC 3401	10%
Johnson, Michael Associate Professor	Ph.D. The University of Texas at Austin	PHSC 4300	10%
Knoll, Brian Associate Professor	Ph.D. University of Arizona	PHSC 3302	10%
Lokhandwala, Mustafa F. Professor	Ph.D. University of Houston	PHAR 2362	10%
Marwaha, Aditi Lecturer	Ph.D. University of Houston	PHAR 2362	30%
Pedemonte, Carlos Associate Professor	Ph.D. University of Rio Cuarto, Argentina	PHSC 3401	10%
Szilagyi, Julianna	Ph.D. Ohio State University	PHAR 4203	10%

D. Library

The University Libraries at the University of Houston (UH) include the main campus library, the M.D. Anderson Library, and five smaller, more specialized libraries: the Architecture & Art Library, the Music Library, the Optometry Library, the Pharmacy Library and the Law Library. Together, these six libraries house more than two million books and subscribe to more than 21,000 serial publications, including newspapers, journals, and monographic serials.

The UH Library Catalog enables patrons to search across the six different collections of the University Libraries, the collection of the W. I. Dykes Library at he University of Houston – Downtown and the collection of the Alfred R. Neumann Library at the University of Houston – Clear Lake. These collections include books, journals, newspapers, theses, microfiche, government documents, maps, music scores, sound recordings, video recordings, slides, CD-ROMs, electronic databases, electronic books, and electronic journals. The University Libraries provide access to approximately 190 electronic databases and the full-text content of more than 18,000 electronic journals

The Pharmacy Library occupies approximately 3,600 square feet of total floorspace on the first floor of the Science and Research 2 Building and houses a collection of more than 11,000 books and the bound and unbound volumes of 92 print journals.

In addition to the resources listed above, Pharmacy Library patrons have access to the resources of the libraries at other local education institutions through the University Libraries' participation in consortia. These institutions include Institution of the Houston Academy of Medicine – Texas Medical Center (HAM-TMC) Library, Greater Western Library Alliance (30 research libraries), TexShare, HARLiC, and Amigos.

The Pharmacy Library operates under the direction of the Coordinator of the Pharmacy Library. Additional staff includes a full-time Branch Supervisor, a half-time Library Assistant, and five part-time student assistants. The supervisor provides orientations and instruction to students.

The Pharmacy Library includes a staff work area of 300 square feet and a separate photocopy room of 140 square feet. Approximately 65% of the library is allocated to user study area and 20% for housing the book and journal collections. The library maintains a seating capacity of sixty-five. Computing resources at the Pharmacy Library consist of five public computer workstations and a single, networked laser printer. These workstations offer access to the Internet, the UNIVERSITY OF HOUSTON Library Catalog, and a range of electronic resources. Clean, quiet, and well maintained, the Library offers an excellent setting for solitary and group study.

E. Facilities and Equipment

Classroom

Currently, no remaining suitable space for classroom activity is available to the college in the Science and Research 2 (SR2) building on the main campus nor at the college's building in the Texas Medical Center.

In order to fulfill the academic requirements of the BSPS program, we will need a minimum of the following:

- *2007* – classroom with a seating capacity of 150 (half day use - afternoon).
- *2008* – classroom with a seating capacity of 175 (afternoon) and a second classroom with a seating capacity of 150 (morning)
- *2009* and thereafter – one classroom with a seating capacity of 80 (both morning and afternoon). PharmD classes use SR2 room 130.

  OR

  2009 and thereafter – two classrooms with a seating capacity of 225 (both morning and afternoon).

All classrooms must have appropriate audiovisual equipment which includes the projection podium computer, lap top hook-up, a document camera, VCR/DVD player, and a good quality sound system.

For laboratory experience, the following is needed

- 1200 sq. ft. for laboratory instrumentation and methods training. The same space could be utilized for elective courses for Pharm.D., M.S., and Ph.D. students.

Office & Research Laboratory Space

Office space is required for new faculty and research space is dependent upon the needs of the faculty. Currently all available faculty and office space is being utilized in both campus buildings (Texas Medical Center Building and Science & Research 2). We estimate each faculty member will need a minimum of 150 sq feet for office space and 1200 sq feet for research laboratory space. Two offices and lab space is needed for FY07. The following year, an additional two offices and research laboratory space is needed and the final year one office and space for one research laboratory will be required.

F. Accreditation

The Bachelor of Science degree in Pharmaceutical Sciences will meet the accreditation standards of SACS (Southern Association of Colleges and Schools).

The College's BSPS curriculum committee will provide input and annually review the program. Faculty and course evaluations will be administered at the close of

each semester according to University guidelines. Additionally, course outcomes assessments overseen by the college's assessment staff will be utilized.

III. Five Year Costs and Funding Sources

Budgetary Plans

Expenses

Faculty

At present time, the teaching load for our faculty is at its maximal considering the requirement and demand of time and effort for grant submission and scholarly productivity by the tenured and tenure-track faculty. With the new BSPS program, curriculum is being created and offered. In cooperation with the faculty from both departments, new faculty lines are required for offering additional courses in preparation for the constant transformation and for meeting the future needs in health care arena. The potential new courses in addition to the core curricular requirements include the life sciences, medicinal chemistry, pharmaceutics, pharmacokinetics, pharmacology, toxicology, and health outcomes.

Additional new instruction areas might include:
Scientific Literature Review and Writing
Biotechnology and New Frontier of Drug Development
Laboratory Instrumentation & Methods Training
Immunopharmacoloogy
Psycho-and Neuropharmacology
Pharmacogenetics
Veterinary Pharmacology
Medicine for Aging and Age-related Diseases
Problems and Management of Drugs of Abuse

With the expectation of the BSPS program, the college requests to add two tenured or tenure-track faculty for FY07, two for FY08, and one for FY09, when the BSPS program reaches a full capacity and steady state. In addition to teaching professional and graduate students and providing committee services to the Department, College, and the University, each newly hired tenured or tenure-track faculty is expected to conduct cutting-edge research and to bring in resources for supporting graduate students in active research programs. (Appendix G – Faculty Fringe Benefits Calculator)

Staff

The BSPS degree plan will be administered by a faculty member designated as program director to oversee program recruitment, advising, and administration as well as supervise staff. A 0.25 FTE assistant director will provide additional support for the director. The teaching assignments will be administered by the program director in concert with department chairs. The stipend or staff salary for the program director or the assistant director will be underwritten by undergraduate advising/assessment fees.

One-full time staff member for the coordination and administration of the B.S. program is anticipated. Additionally, this staff person may provide office support for the new tenure and tenure-track faculty members. The new staff will share existing office space; therefore no additional space is required. (Appendix H - Staff Fringe Benefits Calculator)

Funding Sources

Based upon generating $698,561.64 from tuition of 115 BSPS students in FY09, the college will be able to support 5 faculty and one staff member.

BSPS Tuition Dollars Generated

Year	No. of 3rd Year Students	No. of 4th Year Students	No. of students in final 2 yrs	TOTAL BSPS Pharmacy SCHs Generated	TOTAL BSPS Tuition Dollars Generated
2007	10	0	10	280	$ 62,094.37
2008	41	9	50	1148 + 234 = 1382	$ 306480.05
2009	80	35	115	2240 + 910 = 3150	$698,561.64
2010	80	70	150	2240 + 1820 = 4060	$ 900,368.33
2011	80	70	150	2240 + 1820 = 4060	$ 900,368.33
2012	80	70	150	2240 + 1820 = 4060	$ 900,368.33

Undergraduate rate (final 2 yrs) = 55.72 x 3.98 x SC

The proposed college fees will support college advising by the assistant director and director, computer/technology, assessment of courses to meet SACS accreditation, and photocopier expenses. As laboratory experience is developed, appropriate fees would be included.

College Fees

Required Fees (proposed)	**Per Student**	**Per Semester**
BSPS Advising	$100.00	
Technology	150.00	
Course Program Assessment	45.00	
Handout	50.00 (10.00/course)	
Total Required College Fees		***$345.00***

University fees assessed will be determined and retained by the University of Houston.

University Fees

Required Fees	**Per Student** (based upon 15 SCHs)	**Per Semester**
Academic Service	$ 41.25	
Instruct. Access	52.50	
Library	123.75	
Recreation & Wellness	84.00	
Student Service	176.00	
Technology Fee	180.00	
University Center	35.00	
One Card Fee	6.00	
Utility Assessment	127.50	
Total University Required Fees		***$ 826.00***
Optional Fees	**Per Semester/Per Student**	
Parking	$ 26.00 - $124.00	
Health Insurance	$425.00	

The following Projected **BSPS Profit/Loss Statement** indicates the program will be self-sustaining in the year 2009.

Projected Revenue	**2007**	**2008**	**2009**	**2010**	**2011**	**Cumulative**
Tuition (without tuition increase)	$ 62,094.37	$ 306,480.05	$ 698,561.64	$ 900,368.33	$ 900,368.33	$ 2,867,872.72
Required University Fees	$ 16,520.00	$ 82,600.00	$ 189,980.00	$ 247,800.00	$ 247,800.00	$ 784,700.00
Required College Fees	$ 6,900.00	$ 34,500.00	$ 79,350.00	$ 103,500.00	$ 103,500.00	$ 327,750.00
TOTAL REVENUE	**$ 85,514.37**	**$ 423,580.05**	**$ 967,891.64**	**$ 1,251,668.33**	**$ 1,251,668.33**	**$ 3,980,322.72**
Projected Expenses						
Faculty Salary Prof #1	100,000	102,501	105,064	107,690	110,382	$ 525,637.00
Faculty Salary Prof #2	100,000	102,501	105,064	107,690	110,382	$ 525,637.00
Faculty Salary Prof #3	0	100,000	102,501	105,064	107,609	$ 415,174.00
Faculty Salary Prof #4	0	100,000	102,501	105,064	107,609	$ 415,174.00
Faculty Salary Prof #5	0	0	100,000	102,501	105,064	$ 307,565.00
Total Faculty Salary (2.5% inc./year)	200,000	405,002	515,130	528,009	541,046	$ 2,189,187.00
Faculty Benefits Prof #1	18,616	18,982	19,358	19,743	20,138	$ 96,837.00
Faculty Benefits Prof #2	18,616	18,982	19,358	19,743	20,138	$ 96,837.00
Faculty Benefits Prof #3	0	18,616	18,982	19,358	19,743	$ 76,699.00
Faculty Benefits Prof #4	0	18,616	18,982	19,358	19,743	$ 76,699.00
Faculty Benefits Prof #5	0	0	18,616	18,982	19,358	$ 56,956.00
Total Faculty Benefits	$ 37,232.00	$ 75,196.00	$ 95,296.00	$ 97,184.00	$ 99,120.00	$ 404,028.00
Total Faculty Cost Profs #1 - #5	$ 237,232.00	$ 480,198.00	$ 610,426.00	$ 625,193.00	$ 640,166.00	$ 2,593,215.00
Staff Salary #1 (2.5% inc/year)	37,922	38,972	393,915	40,913	41,936	$ 553,658.00
Staff Benefits #1	9,893	10,031	10,175	10,320	10,470	$ 50,889.00
Total Staff Cost	$ 47,885.00	$ 48,973.00	$ 50,090.00	$ 51,233.00	$ 52,406.00	$ 250,587.00
College Expenses PhotoCopies,Assessment,IT, BSPS Advising	$ 6,900.00	$ 34,500.00	$ 79,350.00	$ 103,500.00	$ 103,500.00	$ 327,750.00
University Expenses Library,StuServ, University Center, Etc	$ 16,520.00	$ 82,600.00	$ 189,980.00	$ 247,800.00	$ 247,800.00	$ 784,700.00
TOTAL EXPENSES excludes physical plant, maintenance, infrastructure, etc.	**$ 308,537.00**	**$ 646,271.00**	**$ 929,846.00**	**$ 1,027,726.00**	**$ 1,043,872.00**	**$ 3,956,252.00**
NET PROFIT/(LOSS)	**$(223,022.63)**	**$(222,690.95)**	**$ 38,045.64**	**$223,942.00**	**$ 207,796.00**	**$24,070.06**

Signature Page

1. Adequacy of Funding – The chief executive officer shall sign the following statement:

   I certify that the institution has adequate funds to cover the costs of the new program. Furthermore, the new program will not reduce the effectiveness or quality of existing programs at the institution.

   _____

   Chief Executive Officer Date

2. Board of Regents or Designee Approval – A member of the Board of Regents or designee shall sign the following statement:

   On behalf of the Board of Regents, I approve the program.

   _____

   Board of Regents (Designee) Date of Approval

3. Board of Regents Certification of Criteria for Commissioner of Assistant Commissioner Approval – For a program to be approved by the Commissioner or the Assistant Commissioner for Academic Affairs and Research, the Board of Regents or designee must certify that the new program meets the eight criteria under TAC Section 5.50 (b): The criteria stipulate that the program shall:

   (1) be within the institution's current Table of Programs;
   (2) have a curriculum, faculty, resources, support services, and other components of a degree program that are comparable to those of high quality programs in the same or similar disciplines at other institutions;
   (3) have sufficient clinical or in-service sites, if applicable, to support the program;
   (4) be consistent with the standards of the Commission of Colleges of the Southern Association of Colleges and Schools and, if applicable, with the standards or discipline-specific accrediting agencies and licensing agencies;
   (5) attract students on a long-term basis and produce graduates who would have opportunities for employment; or the program is appropriate for the development of a well-rounded array of basic baccalaureate degree programs at the institution;
   (6) not unnecessarily duplicate existing programs at other institutions;
   (7) not be dependent on future Special Item funding
   (8) have new five-year costs that would not exceed $2 million.

   On behalf of the Board of Regents, I certify that the new program meets the criteria specified under TAC Section 5.50 (b).

   _____

   Board of Regents (Designee) Date

Appendix A
College Strategic Plan

College of PHARMACY
UNIVERSITY OF HOUSTON

Strategic Plan
2005 - 2006

Expansion of Education and Research Opportunities	6B	Objectives	Deliverables & Accountability Measures	Leadership	Tracking	Progress
		Establish BS in Pharmaceutical Science degree to increase career opportunities	Establish BS program by 2007	Associate Dean Administration	Associate Dean Administration	1. BSPS Program added to COP Strategic Plan & Committee appointed 10.12.05 2. First meeting 11.05 3. Four meetings 2006 + email meetings 4. April 2006, faculty meeting – Approval of curricular outline 5. April 2006, Dean's Advisory Council review and provide input 6. May 2006 Faculty Retreat – program review and conditional approval 7. Aug 3, 2006 Final Faculty Approval 8. Prepare CBM forms, etc 9. October 2006 – Submit to UC

Appendix B

University Strategic Principles and Initiatives

University of Houston System
Strategic Principles and Initiatives
FY 2006

Institutional Excellence

Strategic Principle 1. The UH System universities will continue to strive for academic excellence in all undergraduate, graduate and professional programs, as well as in research and public service.

Imperative

The value of the UH System universities to our constituencies depends first and foremost upon the quality and relevance of our instructional programs, research endeavors, and public service initiatives. Institutional excellence, defined principally in terms of our faculty, staff, and students, is the currency through which we achieve this end. To sustain institutional excellence is to create a system of universities viewed and supported as an indispensable resource to the community.

Initiatives	Deliverables and Accountability Measures	Leadership
1. *Increase the number of faculty on campus to enhance academic and research excellence and accommodate enrollment growth.*	• *Hold Fall 2005 Board of Regents retreat on institutional resource needs (including the number of faculty)* • *Report on FY06 new faculty hires (summer 2006)*	*Presidents, Provosts*
2. *Create a University of Houston Health Science Center and UH System MITC at the Texas Medical Center.*	• *Create academic/research organizational structure on campus that supports the health sciences* • *Expand facilities at TMC* • *Engage in planning activities identified in UHS/Methodist Hospital agreement (including planning for joint faculty appointments and shared facilities)* • *Develop priority areas of research collaboration with TMC institutions (infectious diseases, imaging, cardiovascular, nanotechnology, cancer, neurosciences)* • *Deliver business and health administration programs to TMC and monitor enrollment* • *Pursue state health science center formula funding for optometry and pharmacy programs*	*Foss, Vailas*

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University of Houston System
Strategic Principles and Initiatives,
FY 2006

Initiatives	Deliverables and Accountability Measures	Leadership
3. *Increase UH System programs with international connections.*	• *Plan for and develop the partnerships necessary for the delivery of UHS academic offerings abroad (degree programs, certificates, endorsements)* • *Investigate the opportunities, potential locations, risks and benefits of having a MITC located outside the U.S.* • *Create additional opportunities for UHS students and faculty to study abroad* • *Increase the international/global emphasis in the academic culture of the UHS universities (e.g., faculty reward policies, institutional mission statements)* • *Create a UH System International Education Advisory Group (including members from the Greater Houston Partnership, Houston World Affairs Council, Consular Forum, Consular Corp, etc.)*	*Foss, Provosts*
4. *Systematically explore the development of new programs relevant to the needs of the Houston metropolitan area and the upper Gulf Coast region.*	• *Secure CB approval and implement programs developed in FY05 (UH Ph.D. in School Psychology, UHCL Ed.D. in Educational Leadership, UHCL MS in Biotechnology, UHD BA in Philosophy, UHD BAAS in Safety Management, UHV BS in Nursing, UHV MS in Computer Information Sciences)* • *Report on new programs planned in FY06 (e.g., UHCL BS in Aeronautical Engineering, UHV MS in Economic Development and Entrepreneurship)*	*Foss, Provosts*

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Letters of recommendation removed. Contact the Undergraduate Council for information at madaly@uh.edu.

APPENDIX D

Job Market Need

Letters of Support & Interest

Merck & Company, Inc.
Merck Recruiting and Staffing

Centocor, Inc.
Area Business Manger

Encysive Pharmaceuticals, Inc.
Director, Pharmaceutical Sciences

Appendix D – Job Market Need
Merck & Company, Inc.

Date: Tue, 29 Aug 2006 16:32:14 -0400
From: "Baglivo, Don" <□onald_baglivo@merck.com> Subject: Merck Career Opportunities

I wanted to drop you a line in regards to some excellent opportunities we have here at Merck The Neuroscience and Imaging Drug Discovery teams here in West Point PA are growing by over 50 people this year and we currently still have about 25 positions open across Schizophrenia, Sleep, Alzheimer's, Pain, Ophthalmics, Stroke, Neurodegeneration and Imaging.

Now and in the near future we will have BS, MS and Ph.D. level career opportunities in the following areas: In Vivo Surgical and Behavior(specifically microdialysis), Neurochemistry, In Vitro Pharmacology, Biochemistry, Cellular and Molecular Biology and synthesis ofPET/SPECT tracers.

Please feel free to share my contact information with those who might be interested and qualified for these opportunities.

I look forward to your response.

Best Regards,

Don Baglivo
Sourcing Specialist
Merck Recruiting and Staffing Basic Research 215-993-6573

Notice: This e-mail message, together with any attachments, contains information of Merck & Co., Inc. (One Merck Drive, Whitehouse Station, New Jersey, USA 08889), and/or its affiliates (which may be known outside the United States as Merck Frosst, Merck Sharp & Dohme or MSD and in Japan, as Banyu – direct contact information for affiliates is available at http://www.merck.comlcontact/contacts.html) that may be confidential, proprietary copyrighted and/or legally privileged. It is intended solely for the use of the individual or entity named on this message. If you are not the intended recipient, and have received this message in error, please notify us immediately by reply e-mail and then delete it from your system.

Letters of recommendation removed. Contact the Undergraduate Council for information at madaly@uh.edu.

Letters of recommendation removed. Contact the Undergraduate Council for information at madaly@uh.edu.

APPENDIX E

Student Demand

Letters of Support & Interest

University of Iowa, College of Pharmacy

The University of Louisiana
Department of Clinical & Administrative Sciences

University of Houston
College of Natural Sciences & Mathematics
Dr. John L. Bear, Dean

Letters of recommendation removed. Contact the Undergraduate Council for information at madaly@uh.edu.

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Letters of recommendation removed. Contact the Undergraduate Council for information at madaly@uh.edu.
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BS Pharmaceutical Sciences Curriculum

Summer

Course Listing	Course Name	Credit Hours	University Core	College Requirement	College Elective
MATH 1310 OR PRIOR to Fall Registration	College Algebra OR Placement Examination	3 or Credit	Preparation for required MATH 1330		

First Year
Fall Semester

Course Listing	Course Name	Credit Hours	University Core	College Requirement	College Elective
BIO 1361	Introduction to Biological Science I	3	X* - Natural Sciences		
BIO 1161	Introduction to Biological Science I Lab	1		X	
ENG 1303	English Composition I	3	X - Communications		
HIST 1377	The United States to 1877 or equivalent	3	X - American History		
CHEM 1331	Fundamentals of Chemistry I^^ (prereq MATH 1310)	3		X	
CHEM 1111	Fundamentals of Chemistry I Lab^^ (co-req CHEM 1331)	1		X	
MATH 1310	College Algebra or Placement Examination (if not previously enrolled or credit)^^	3 or Credit	X – Mathematics Preparation for required MATH 1330		
Total		**13 or 14**	**12 or 9**	**1 or 5**	

Spring Semester

Course Listing	Course Name	Credit Hours	University Core	College Requirement	College Elective
BIO 1362	Introduction to Biological Science II	3	X* - Natural Sciences		
BIO 1162	Introduction to Biological Science II Lab	1		X	
CHEM 1331 OR 1332	Fundamentals of Chemistry I OR II (prereq CHEM 1331)^^	3		X	
CHEM 111 OR 1112	Fundamentals of Chemistry I OR II Lab (prerep CHEM 1111)^^	1		X	
ENG 1304	English Composition II	3	X - Communications		
MATH 1330 **OR** Placement Exam and MATH 1431#	Precalculus **OR** Placement Examination for Precalculus and Calculus I#*	3 OR Credit and 4	X* - Math Reasoning	OR X	
Total		**14 or 15**	**9 or 6**	**5 or 9**	

Summer

Course Listing	Course Name	Credit Hours	University Core	College Requirement	College Elective
CHEM 1332	Fundamentals of Chemistry II (for students not previously enrolled)	3		X	
CHEM 1112	Fundamentals of Chemistry II Lab (for students not previously enrolled)	1		X	
Total		4		4	

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Course Listing	Course Name	Credit Hours	University Core	College Requirement	College Elective
CHEM 3331	Fundamentals of Organic Chemistry I	3		X	
CHEM 3221	Fundamentals of Organic Chemistry I Lab	2		X	
POLS 1336	U.S. & Texas Constitution/Politics	3	X - Government		
Social Science PSYC 1300 or SOC 1300 or ECON 2311	(Choose One): Introduction to Psychology Introduction to Sociology Economic Concepts and Issues	3	X - Social Sciences		
Math 1431#	Calculus I#* (if not completed 1st year)	4		X	
PHAR 2362	Principles of Drug Action	3		X	
Total		**14 or 18**	**6**	**8 or 12**	

Second Year
Spring Semester

Course Listing	Course Name	Credit Hours	University Core	College Requirement	College Elective
CHEM 3332	Fundamentals of Organic Chemistry II	3		X	
CHEM 3222	Fundamentals of Organic Chemistry II Lab	2		X	
BIOL 2133	Elementary Microbiology	3		X	
BIOL 2333	Elementary Microbiology Lab	1		X	
POLS 1336	U.S. Government: Congress, President & Courts	3	X - Government		
HIST 1378	The United States Since 1878 or equivalent	3	X - American History		
Total		**15**	**6**	**9**	

Admitted into BSPS Program

Third Year
Fall Semester

Course Listing	Course Name	Credit Hours	University Core	College Requirement	College Elective
PHSC 3300	Human Physiology and Pathophysiology I	3		X	
PHSC 3401	Biochemical Principles	4		X	
PHSC 3301	Dosage Forms I & Calculations	3		X	
Humanities	Humanities (see approved UH List)***	3	X - Humanities		
PHAR 2362 OR Social Science	Principles of Drug Action (if not previously enrolled) **OR** Writing Intensive Social Science (if not enrolled in PHAR 2362) (see approved UH List)**	3	X -Writing Intensive Social Sciences	X	
PHSC 3100	Career in Pharmaceutical Sciences Seminar	1		X	
PHSC 3101	Chemical Functional Group Analysis	1		X	
Total		**15 - 18**	**3 or 6**	**12 or 15**	

Third Year
Spring Semester

Course Listing	Course Name	Credit Hours	University Core	College Requirement	College Elective
PHSC 3400	Human Physiology and Pathophysiology II	4		X	
PHSC 3302	Immunopharmacology	3		X	
PHSC 3303	Dosage Forms II & Biopharmaceutics	3		X	
PHSC 3200	U.S. Health Care Systems	2		X	
PHSC xxxx	BSPS Elective	2			X
PHSC xxxx	BSPS Elective	2			X
Total		16		12	4

Fourth Year
Fall Semester

Course Listing	Course Name	Credit Hours	University Core	College Requirement	College Elective
PHSC 4301	Medicinal Chemistry I	3		X	
PHSC 4300	Biostatistics and Experimental Design	3		X	
PHSC 4400	Pharmacology I	4		X	
PHSC 4100	Advances in Pharmaceutical Science I - Drug Literature	1		X	
PHSC 4200	Pharmacoepidemology	2		X	
PCOL 4131	Drug Uses and Abuses	1		X	
PHSC xxxx	BSPS Elective	2			X
Total		16		14	2

Fourth Year
Spring Semester

Course Listing	Course Name	Credit Hours	University Core	College Requirement	College Elective
Visual/Performing Arts	Visual/Performing Arts (see aproved UH List)****	3	X - Visual/Performing Arts		
PHSC 4101	Advances in Pharmaceutical Science II - Drug Literature	1		X	
Social Science	Writing Intensive Social Science (if not previously enrolled) (see approved UH List)**	3	X - Social Sciences (if not previously enrolled)		
PHSC xxxx	BSPS Elective	3			X
PHSC xxxx	BSPS Elective	3			X
PHSC xxxx	BSPS Elective	3			X
PHSC xxxx	BSPS Elective	2			X
Total		15 or 18	3 or 6	1	11

		Credit	University Core	College	College
PROGRAM		Hours		Requirement	Elective
TOTAL		119 to 126	36 - 43	66	17

ELECTIVES

A student must select **elective** courses from any of the following elective categories such that a student earns at least **17 credit hours.**

Prescribed Elective Courses	**Elective Areas**
PHSC 3201 Community Health	Mgt
PHSC 3202 Drug Information	Ceutics
PHSC 4201 Pharmaceutical Systems Management	Mgt
PHSC 4202 Medicinal Chem II	Pcol
PHSC 4203 Toxicology	Pcol
PHSC 4302 Pharmaceutical Outcomes Management	Mgt
PHSC 4303 Healthcare & Pharmaceutical Marketing	Mgt
PHSC 4304 Pharmacokinetics	Ceutics
PHSC 4305 Regulatory Affairs	Ceutics
PHSC 4401 Pharmacology II	Pcol

Electives offered by other colleges:

Physics 1301 Introductory General Physics

BIO 3301 & 3201 Genetics + Laboratory (Prereq to BIO 4320 & 4317)

Chem 4373 Survey of Physical Chemistry I

Free Electives

PHSC 3296 Senior Research Project

PHSC 3298 Special Problems in Pharmaceutical Sciences

PHSC 3396 Senior Research Project

PHSC 3398 Special Problems in Pharmaceutical Sciences

PHSC 3399 Senior Honor Thesis

PHSC 3498 Special Problems in Pharmaceutical Sciences

PHSC 4298 Special Problems in Pharmaceutical Sciences

PHSC 4396 Senior Research Project

PHSC 4398 Special Problems in Pharmaceutical Sciences

PHSC 4399 Senior Honor Thesis

BS Degree Requirements

1. Students must complete at least 123 semester hours of courses. Course credit may be awarded by advance placement or credit by examination. At 36 of the 123 semester hours must be advanced, according to the respective degree plans.
2. Students must complete the 42 hours state-mandated core curriculum.
3. Students must complete all course requirements of the major as specified in the college section of the catalog, some of which may also satisfy university core curriculum.
4. Students must earn a 2.00 minimum cumulative grade point average in courses attempted at the university.
5. Students must earn a 2.00 minimum cumulative grade point average in courses attempted in the major at the university.
6. Students must earn a 2.00 minimum cumulative grade point average in all core courses attempted at the university.
7. In addition to these general requirements, candidates for graduation must meet all special degree requirements as specified in the appropriate college in which the major is complete.
8. Students cannot satisfy any degree requirements in their major with advanced courses that were completed more than seven years before the semester in which the degree is awarded, unless they receive permission from the college dean.
9. No more than 30 semester hours of correspondence work and extension class credit may be applied to a bachelor's degree. The maximum correspondence credit applicable to the degree is 18 semester hours, with no more than six hours applicable toward the major.

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10. Students must complete at least 30 semester hours in residence.
    a. These residence hours are not to include credit by examination, special problems, or individual reasearch courses taken at the University of Houston.
    b. A minimum of nine semester hours of advanced work in the major field must be completed in residence.
11. The last 30 semester hours to be applied toward a bachelor's degre must be taken in residence.
12. At least 12 semester hours must be completed in the formal scienes, i.e. mathematics, computer science, formal logic, or statistics, at least six semester hours of which must be in Mathematics. Courses applied to this requirement must either be core-approved mathematics or mathematic/reasoning courses or have as prerequisites at least six hours of such courses. Students may satisfy part or all of the formal science requirement by examination, provided that examinations for placement without credit be taken only at the Universeity of Houston. Students who place out of MATH 1310 or MATH 1330 by taking the noncredit placement examinations will have their formal science requirments reduced accordingly.
13. Student is required to complete at least 17 credit hours of approved pharmaceutical sciences elective courses.

***Core Requirements**

If student earned a BS/BA degree or higher from a U.S.A. university/college the student is exempt from the University of Houston core requirements.

If you are transferring from another state college/university and are core complete at that institution, you are not required to complete the University of Houston core curriculum. You are considered core complete by the University.

However, the college, according to University policy, may designate certain ***core courses required by the College.*** The courses indicated by an *asterick* (*) **are *required by the college*** even if a student is core complete by transfer or by earning a bachelor's degree or higher.

Core Curriculum List, go to www.uh.edu/academic

**Writing Intensive Social Science List

***Humanities List

****Visual/Performing Arts List

 # Math Reasoning

Student may be required to enroll in Math 1310 College Algebra OR Math 1330 Precalculus OR pass placement examination prior to enrolling in Math 1431 - Calculus I.

^^ CHEM 1331 General Chemistry I + CHEM 1111 General Chemistry I Laboratory

RECOMMENDED OPTION: MATH 1310 is a prerequisite for CHEM 1331. IF a student must enroll in college algebra, MATH 1310, it is RECOMMENDED the student enroll in MATH 1310 the SUMMER BEFORE the first-year fall enrollment OR successfully take the placement examination PRIOR to fall registration of the first year.

OPTION TWO: If the student is required or chooses to enroll in MATH 1310, college algebra, the first semester of the first year THEN a suggested degree plan alternative would be:

Continue with degree plan with the EXCEPTIONS listed below:

First Year, fall semester - Enroll in MATH 1310 College Algebra; NO enrollment in CHEM 1331, General Chemistry I or CHEM 1111, General Chemistry I Laboratory

First Year, spring semester - Enroll in CHEM 1331, General Chemistry I AND CHEM 1111, General Chemistry I Laboratory;
NO enrollment in CHEM 1332 General Chemistry II and CHEM 1112 General Chemistry II Laboratory

First Year, SUMMER semester - Enroll in CHEM 1332, General Chemistry II and CHEM 1112, General Chemistry II Laboratory

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APPENDIX G - Faculty Fringe Benefits Calculator

Fringe Benefit Calculation for Faculty With Full Benefits FY 2007

	Retirement Plan Contributions
8.50%	IORP-1 (Service date crior to 9/1/1995)
6.00%	IORP-21Service date after 9/1/1995)
6.00%	ITRS (Teacher Retirement System)

	Medical Insurance Contributions (Health Select) Including Basic Term Life
$ 360.54	Employee Only
$ 498.49	Employee & Children
$ 566.57	Employee & Spouse
$ 704.52	Employee & Family

Faculty health Insurance for summer salary support should not be charged to a grant. The fringe calculator will not calculate health and life Insurance on summer effort.

Standard expenses for this emplovee	
FICA -Social Security	6.20%
FICA - Medicare	1.45%
Unemolovment Comcensation Insurance	0.55%
Workers Comcensation Insurance	0.45%
Life Insurance included in health insurance rates	

The Fringe Calculator rounds to whole dollars - The estimated salary Increase will calculate only on salary Fill out only the highlighted areas

Employee name
Enter information specific to this employee:
Salary/wages - enter monthly rate Longevity pay - enter monthly rate Retirement benefits - enter appropriate rate Medical coverage - enter monthly rate Estimated salary increase per year (max 5%)

$ 9,091.00	Use actual monthlv Day rate, includina cents
$ -	Link to HR information on calculatinn lonnevitv nay
6.00%	See chart above for rates
$ 360.54	See chart above for rates
2.50%	Enter number as 2.50, 3.00

		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	Cumulative
Effort on Project	Academic Months	11	11	11	11	n	55
(months)	Summer Months						0
Monthlv salarv		$ 9,091.00	$ 9,318.28	$ 9,551.23	$ 9,790.01	$ 10,034.76	
	Total estimated salary	$100,001.00	$102,501.00	$ 105,064.00	$ 107,690.00	$110,382.00	$ 525,638.00
Benefit Calculation							
FICA - Social SecurltY		$ 6,200.00	$ 6,355.00	$ 6,514.00	$ 6,677.00	$ 6,844.00	$ 32,590.00
FICA - Medicare		$ 1,450.00	$ 1,486.00	$ 1,523.00	$ 1,562.00	$ 1,601.00	$ 7,622.00
Retirement		$ 6,000.00	$ 6,150.00	$ 6,304.00	$ 6,461.00	$ 6,623.00	$ 31,538.00
Unemclovment Comcensation Insurance		$ 550.00	$ 564.00	$ 578.00	$ 592.00	$ 607.00	$ 2,891.00
Workers Comoensation Insurance		$ 450.00	$ 461.00	$ 473.00	$ 485.00	$ 497.00	$ 2,366.00
Medical Insurance		$ 3,966.00	$ 3,966.00	$ 3,966.00	$ 3,966.00	$ 3,966.00	$ 19,830.00
Total Benefits		$ 18,616.00	$ 18,982.00	$ 19,358.00	$ 19,743.00	$ 20,138.00	$ 96,837.00
Total SalarvlWaae and Benefits Excense		$ 118,617.00	$ 121,483.00	$ 124,422.00	$127,433.00	$ 130,520.00	$ 622,475.00

Fringe Benefit Calculation for STAFF With Full Benefits FY 2007

	Retirement Plan Contributions
8.50%	ORP-1 (Service date prior to 9/1/1995)
6.00%	ORP-2 (Service date after 9/1/1995)
6.00%	TRS (Teacher Retirement System)

	Medical Insurance Contributions (Health Select) Including Basic Term Life
$ 360.54	Employee Only
$ 498.49	Employee & Children
$ 566.57	Employee & Spouse
$ 704.52	Employee & Family

Faculty health Insurance for summer salary support should not be charged to a grant. The fringe calculator will not calculate health and life insurance on summer effort.

Standard expenses for this emDlovee	
FICA -Social Security	6.20%
FICA - Medicare	1.45%
Unemplovment Compensation Insurance	0.55%
Workers Compensation Insurance	0.45%
Life Insurance included in health insurance rates	

Employee name

Enter Information specific to this employee:

Salary/wages - enter monthly rate Longevity pay - enter monthly rate Retirement benefits - enter appropriate rate Medical coverage - enter monthly rate Estimated salary increase per year (max 5%)

$ 3.166.00	Use actual monthly pay rate. including cents
$ -	Link to HR information on calculatina lonaevitv Dav
6.00%	See chart above for rates
$ 360.54	See chart above for rates
4.0%	Enter number as 2.50. 3.00

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	Cumulative
Effort on Project (months) Academic Months	12	12	12	12	12	60
Summer Months						0
	Effort on Project (months)					
Monthlv salarv	$ 3.166.00	$ 3.245.15	$ 3.326.28	$ 3,409.44	$ 3,494.67	
Total estimated salarv	$ 37.992.00	$ 38.942.00	$ 39.915.00	$ 40.913.00	$ 41.936.00	$ 199.698.00
Benefit Calculation						
FICA - Social Security	$ 2,356.00	$ 2,414.00	$ 2,475.00	$ 2.537.00	$ 2.600.00	$ 12,382.00
FICA - Medicare	$ 551.00	$ 565.00	$ 579.00	$ 593.00	$ 608.00	$ 2.896.00
Retirement	$ 2.280.00	$ 2.337.00	$ 2.395.00	$ 2,455.00	$ 2.516.00	$ 11.983.00
Unemployment Compensation Insurance	$ 209.00	$ 214.00	$ 220.00	$ 225.00	$ 231.00	$ 1.099.00
Workers Compensation Insurance	$ 171.00	$ 175.00	$ 180.00	$ 184.00	$ 189.00	$ 899.00
Medical Insurance	$ 4.326.00	$ 4,326.00	$ 4.326.00	$ 4.326.00	$ 4,326.00	$ 21.630.00
Total Benefits	$ 9,893.00	$ 10,031.00	$ 10,175.00	$ 10,320.00	$ 10,470.00	$ 50,889.00
Total SalarvlWaae and Benefits Expense	$ 47,885.00	$ 48.973.00	$ 50.090.00	$ 51,233.00	$ 52,406.00	$ 250.587.00