AUTHORIZATION TO PLAN (ATP) AN ACADEMIC PROGRAM (Revised 06/12/07)

Please complete all sections with an **emphasis** on items 7, 8, 9 and 10. The ATP is not to exceed 5 pages.

This ATP was approved by College of Pharmacy Curriculum Committee, the College of Pharmacy faculty as a whole, and the Dean of the College of Pharmacy

1. School/College and Department/Unit

College of Pharmacy (CoP), Department of Pharmaceutical Sciences

2. Chair/Convener of Planning Committee

Anthony D. Wright, PhD

3. Program Category: _X_ New ___ Modified ___ Interdisciplinary

4a. Degree or Certificate Proposed:

PhD in Pharmaceutical Sciences

4b. List similar degrees or certificates offered in UH System:

There are no similar degrees offered within the UH System.

5. Planning

a. Planning period (not to exceed one year or reapplication is necessary)

Three months from the date of this submission.

b. Activities to be undertaken during the planning phase

- Curricula and course development
- Outreach to existing faculty
- Review recruitment needs
- Development of Dissertation topics
- Secure short to medium term funding and establish procedures to maintain long term program funding
- Assess need-outcomes (Undergraduate and Professional Students)
- Creation of WASC submission
- Submission of documentation to WASC
- Notification to ACPE (Accreditation Council for Pharmaceutical Education) that this planning is occurring and that the program will enhance the PharmD program in the CoP
- Develop a rigorous admissions process
- Develop a grading system for didactic and research credits
- Create procedures for Dissertation defense
- Create guidelines for Graduate Study
- Develop a brochure for the program
- Establish/Create UHH Catalogue entries

c. Submission date of program proposal

Three months after authorization is obtained.

d. Workload/budget implications during planning period

The planning will be mainly undertaken by Dr. Wright as part of his regular CoP duties with the assistance of a committee as required. There are no budgetary implications.

6. Program Description (Objectives and relationship to campus mission and strategic plan)

This program will provide graduate training in the Pharmaceutical Sciences for students with a PharmD, MS. or Baccalaureate Degree, and those currently working in the field. Studies will culminate with the award of a PhD in Pharmaceutical Sciences. The program will utilize the extraordinary intellectual, biological, physical and cultural diversity on the Island of Hawaii, and within both the State and Pacific Region, as a focus of investigation and study.

The program will prepare students for senior positions in academia, education, government, industry and any related fields.

Program objectives:

- To provide an important course of study available nowhere else within the State of Hawaii.
- To enhance academic rigor and scholarship within the CoP and the UH Hilo in general.
- To leverage the research expertise of CoP faculty.
- To advance the science of Pharmacy and Pharmaceutical Sciences.
- To foster knowledge of current trends and issues in Pharmaceutical Sciences including basic and applied research and natural resource issues.
- To provide participants with experiences in conceptual and technical research areas in the Pharmaceutical Sciences, e.g., Pharmaceutics, Pharmacognosy, Medicinal Chemistry, Pharmacology, as well as in exploring the natural environment, marine and terrestrial, for potentially economical important natural products.
- To promote research and scholarly activities that will enable participants to successfully pursue a career in the pharmaceutical and related industries.
- To offer new career training options to undergraduate and pharmacy students within the UH System, Statewide and throughout the Pacific Basin.
- To develop methods and/or innovations in analytical processes and technologies relevant to natural product research and discovery.

Graduate Students within the program will:

- Develop advanced skills in the Pharmaceutical Sciences.
- Perform scientific research that will advance knowledge in the interdisciplinary field of Pharmaceutical Sciences.
- Be educated and trained to use advanced technological equipment in order to perform quantitative analysis and be able to interpret complex data.
- Present research findings at local, national and international forums.
- Interpret and critique professional scientific literature.
- Undertake an original individual research project leading to a PhD Dissertation.
- Pass qualifying exams by the end of their third academic year.
- Successfully defend their Dissertation.

Strategic Plan, University Mission, and Service to the University and Community:

The proposed graduate program is consistent with UH System Strategic Goals and the mission of UH Hilo.

UH Goal 1: Educational Effectiveness and Student Success: This program will enable residents of the State of Hawaii to attain the PhD degree without having to leave the State. This will remove a formidable barrier to graduate training for many, especially nontraditional students with families and/or job responsibilities in Hawaii. The program will also support UH Hilo's primary mission of providing an excellent undergraduate education as it will enrich existing UH Hilo undergraduate programs with supplementary courses and activities. The programs in Biology, Chemistry, and Marine Science, will benefit immediately, with those of the College of Agriculture, Forestry and Natural Resources Management benefiting in the future. Honors students and advanced undergraduates will be allowed to participate in selected activities in the new graduate program, where appropriate.

UH Goal 2: A Learning, Research, and Service Network: This program will advance and extend the research and scholarly productivity of the UH System in general and the State of Hawaii as a whole. In the medium to long term the program will also have a wider economic impact through fostering the intellectual capital here in the State of Hawaii. As more and more graduate students participate in the program, providing services to local industries, government agencies, as well as to other countries and territories in the Pacific Basin new investment will be attracted to Hawaii.

UH Goal 3: A Model Local, Regional, and Global University: The program will advance student understanding of the natural environment in Hawaii with a special reference to the Island of Hawaii. The graduate courses and graduate student research projects will to varying extents utilize the natural resources and environment of the Island of Hawaii and interactions with Federal, State and non-profit agencies to augment the program through access to research and course projects and expertise. The program, strategically positioned, and expertly staffed, on the Big Island, will be available to everyone in the Pacific Region and in so doing is ideally positioned to become one of the world's foremost multicultural centers for the advancement of local, national and global studies of the natural environment.

UH Goal 4: Investment in Faculty, Staff, and Their Environment: For CoP faculty and staff a PhD program of this nature is essential for the recognition of UH Hilo at all levels. Establishment of this program will provide the opportunity for faculty to continue their logical academic development to the highest level.

UH Goal 5: Resources and Stewardship: Establishment of this program at UH Hilo within the CoP will demonstrate the UH-System's continued commitment to workforce development.

7. Program Justification (Needs and Rationale. Include, as appropriate, internal and external factors driving need for this program; description of needs assessment; number of interested student per year; need for such a program in relation to workforce development, graduate studies, etc.)

The creation of a graduate program offering the PhD degree is the next logical step in the academic development of the UH Hilo CoP. Currently, the PhD degree in Pharmaceutical Sciences is the recognized entry level degree necessary to assure that graduates are competitive in the current job market for scientists able to develop, lead, and direct independent research in industrial, academic, educational and government settings, locally, nationally and internationally. Indeed, it is an essential step toward fulfilling the mission of the CoP, which is to educate pharmacy practitioners and leaders, to serve as a catalyst for much needed innovations and discoveries in pharmaceutical sciences and practice for promoting health and well-being, and to deliver quality patient care, as it solidifies our intentions of enhancing the research capabilities of UH Hilo. Only through an active graduate program will the CoP and its faculty be able to fulfill their obligations to expand the essential knowledge-base of the local, national and global medical community and produce highly skilled researchers, practitioners, and teachers who continue the advancement of biomedical science. It should also be noted that in current nationwide PharmD programs, pharmacists are no longer being trained to be researchers in the Pharmaceutical Sciences. This means there is already a projected need for the researchers who will graduate from this program.

A graduate program in the CoP will open many doors for our students and faculty. One of the primary duties of a university is to train the next generation of scientists and teachers -- graduate students and postdoctoral fellows who will be pursuing research in the College under the supervision and mentoring of the academic faculty. Addition of these future professionals to the System will greatly enhance the intellectual depth and breadth of the College and Campus community through seminar programs, discussion groups and campus lectures. The diverse scientific perspectives brought to the College, not just by the faculty but also by graduate students and postdoctoral fellows from a variety of backgrounds, will all contribute to the advancement of scholarship, which in turn will lead to an increase in the exposure of our programs to the scientific community and potential sources of funding. As the program develops, the University of Hawaii will be recognized as the center of excellence in pharmaceutical research and education for the Pacific Basin.

The benefits to our professional students cannot be overemphasized. A graduate program exposes students to career opportunities beyond the practice of pharmacy and creates new opportunities to enter into the pharmaceutical industry and academia. An active graduate program will give the professional student the opportunity to “try out” potential career options like drug discovery, pharmaceutics, medicinal chemistry, pharmacology, or clinical research before committing to a particular career path. In this trial period, professional students will closely interact with graduate students and postdoctoral fellows who have already decided to pursue one of these fields, and they will receive the guidance and mentoring of a faculty member working at the forefront of their particular field. Students completing their PharmD program in the UH Hilo CoP will gain an understanding and appreciation of the breadth of opportunities through which pharmacists can contribute to modern healthcare.

This program will be unique in the Pacific Basin. Our location in Hilo will serve to make the program accessible to students from Hawaii, as well as those from other nations in the Pacific region, who are considered under-represented minorities in the scientific community. It is expected that the research and scholarly activities of this program will help to stimulate a local pharmaceutical/biotechnology industry in Hawaii, as similar programs have done in other locations around the country, thereby augmenting the job market for our students upon graduation while boosting the state economy.

CoP will graduate its first class in May 2011. Once this PhD program is initiated there will be significant interest from local, national and international students alike who will want to participate in it. Currently, 20 of our students have expressed interest in applying to join our program to pursue a PhD. With entry of this Fall’s cohort, CoP will reach its full complement of 360 PharmD students, so it is expected that this number of students expressing interest will continue to grow. Once the program is started it is anticipated that we will have an initial cohort of between 5 and 10 entering students per year, leading to a total of 25-30 graduate students within 5 years.

8. Description of resources required

a. Faculty (existing and new FTEs)

The proposed PhD program will not require the hiring of any additional faculty at the Assistant, Associate or Full Professor level. To undertake this program, existing professorial CoP faculty will deliver both the didactic and research parts of the program. Currently, there are 19 CoP faculty either actively, or soon to be actively engaged in research, or affiliated with the College, who are in a position to offer Dissertation research topics to facilitate the delivery of this part of the program and also to offer the research short courses that will be required in the didactic part of the program. Based on a review of what seven other Colleges of Pharmacy around the country offer in terms of the didactic part of their PhD programs, it was found that typically a core of 26 didactic credit hours is required for graduation together with some elective credit hours (10-30) taken within the first three years of the program. Therefore, if each member of faculty offered just 3 credit hours within this three year period, a total of 57 credit hours

could currently be offered. It is also envisioned that a significant number of basic graduate credit hours will be available to the program through the existing PharmD program.

b. Library resources (including an evaluation of current resources and an estimate of the cost of additional resources required)

As all of the resources required by this PhD program are already available to our current Professional Students and CoP Faculty, there will be no need for extra Library resources.

c. Physical resources (space, equipment, etc.)

Within the College of Pharmacy, adequate facilities exist to enable all aspects of the PhD program to be undertaken. There are enough teaching and lecture rooms and resources within the new CoP buildings to enable all of the didactic part of the curriculum to be delivered. With the completion of the new CoP modular research laboratories, the research facilities in the USDA Forestry Complex (Nowelo Street) and those at the Waiakea Research Station, together with associated equipment, there is adequate space and resources to enable at least 25-30, individual PhD research projects to be undertaken at any one time.

d. Other resources required (staff, graduate assistantships, etc.)

It is likely that each year a number of graduate assistantships will be required. These assistants will be employed to assist with the day to day College functions at all levels, in particular with the teaching and research; they will be funded extramurally.

9. Five-Year Business Plan. Provide a five-year projected budget for the program that includes:

a. Annual costs to implement the program

See 9.f.

b. Projected enrollment and estimated tuition revenue

It is anticipated that the program will attract between 5-10 PhD students each year, up to around a total of 25–30 students at any one time. In the first few years of the program tuition of $5256 (Resident, 2010-2011), $12,096 (Non-resident, 2010-2011), $5782 (Resident, 2011-2012), and $13,306 (Non-resident, 2011-2012), will be levied per student per two semesters assuming 9 credits per semester multiplied by the number of students. Assuming five students in year one this would mean tuition revenue of somewhere between $26,280 and $60,480 (average $43,380), and increasing by a similar amount for the following four years.

c. How will be program be funded?

In the short to medium term the program will be funded mainly though federal grants awarded to the CoP, and other grants obtained by individual researchers. These funds will enable all of the projected costs to be covered within the first 3-5 years of the program. It is anticipated that in the long term the program will be extramurally funded through grants to faculty from, for example, NIH, NSF, industrial partnerships and scholarships as well as through federal earmark funding (DOE), and through a certain number of students being self-funded.

d. Does the current or proposed budget (Department/College/Campus) include funds or a request for funds for the proposed program? Please provide details.

At the start of the new PhD program, the CoP will provide some teaching assistantships that are entirely consistent with the education mission of the College. Students will also be eligible for financial aid.

e. Given a "flat budget" situation, how will the proposed program be funded?

As noted above, no new funding will be requested for the establishment of this program. The program will be established with existing resources and new tuition revenue.

f. Mini Cost Revenue Template (Excel; top of next page)

YEAR	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
PROGRAM COSTS					
Faculty w/o fringe					
Other personnel costs w/o fringe	40,000	40,000	60,000	80,000	80,000
Library					
Equipment/Supplies	60,000	120,000	180,000	240,000	240,000

Other	20,000	30,000	40,000	50,000	50,000
TOTAL Expenses	**120,000**	**190,000**	**280,000**	**370,000**	**370,000**
REVENUES					
Projected Enrollment	6	12	18	24	24
No. of Courses	10	20	30	30	30
No. of Credits	18	36	54	54	54
SSH	NA	NA	NA	NA	NA
Tuition Rate/Credit	NA	NA	NA	NA	NA
Total Revenue from Tuition	72,576	159,672	263,466	386,424	386,424
Other Sources of Income	100,000	150,000	200,000	250,000	250,000
TOTAL Revenues	**172,576**	**309,672**	**463,466**	**636,424**	**636,424**

10. Impact on current courses or programs.

The major impact the PhD program will have on current courses and programs will be to provide students with an advanced track to continue their studies here in Hawaii once they have completed their undergraduate or professional degrees. In other words, there may be greater retention of the most qualified students who would otherwise leave the Island to pursue postgraduate studies elsewhere. Also, it is envisioned that some of the courses offered in the PhD program may be open to students involved in other UH Hilo graduate programs, for example, the M.S. in Tropical Conservation Biology and Environmental Science (TCBES). When PhD students attend courses offered in the PharmD program, this again will enhance these offerings as the mix of PharmD and PhD students should serve to elevate the academic value of such courses.

11. If this program is multidisciplinary, provide evidence of commitment for support from the colleges, departments, programs, and/or individuals expected to participate.

At this stage, even though the PhD in Pharmaceutical Sciences will be multidisciplinary by its very nature, implementation will be facilitated by faculty directly affiliated with the College of Pharmacy.

Reviewed by: (*The ATP has completed the campus approval process prior to review by Council of Chief Academic Officers*)
Campus Chief Academic Officer:
Comments and Recommendations:

_____
Print Name Signature Date
Council of Chief Academic Officers (Systemwide Consultation):
Comments/Recommendations:

_____
Print Name Signature Date
Chancellor: ___ Approved ___ Disapproved

_____
Print Name Signature Date
(*Final signed copy is provided to the Vice President of Academic Planning and Policy for Program Action Report)* 6/12/07