

UNIVERSITY of HAWAI'I®
HILO



Proposal

**Master of Science Degree
Clinical Psychopharmacology**



**College of Pharmacy
University of Hawai'i at Hilo**

Revision Date: June 28, 2011

**Proposal for a Master of Science Degree in Clinical Psychopharmacology
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Executive Summary

The UH Hilo College of Pharmacy proposes a Master of Science degree in Clinical Pharmacology that would address the need of the US Army in Hawai`i and the Pacific region for additional clinical psychologists with prescriptive authority. It would meet the anticipated growth in demand in the general population as an increasing number of states join Louisiana, New Mexico, and Guam in granting such authority to qualified specialists.

The College of Pharmacy would be the first pharmacy school in the nation to provide this distinctive training. The program offers pharmacotherapeutics training with a strong emphasis on the clinical, scientific and pharmaceutical expertise available only through the UH Hilo College of Pharmacy. The proposed program is unique to Hawai`i, the Pacific and the nation. Other institutions around the country offer post-doctoral masters degrees in psychopharmacology through schools of psychology.

The MSCP program is consistent with the University's mission as stated in the 2002-2010 Strategic Plan, which calls both for quality undergraduate programs and for graduate programs "where need warrants and the university has strong expertise." The program also provides advanced professional development to working clinicians, with an initial focus on those practicing in the state of Hawai`i.

The MSCP program draws on the pharmacological expertise of existing College faculty and on the expertise of specialists in the fields of biochemistry, biopsychology, and clinical practice. It complements the College of Pharmacy's existing Doctor of Pharmacy (PharmD) program, which graduated its first class in May 2011; and the newly established PhD in Pharmaceutical Science, which will welcome its first students in August 2011. The College maintains its own support staff, and additional technology, library, and other support services are provided to the College as to all instructional components by the University and the UH system.

There is ample documentation of the need for clinical psychologists to be properly trained in the use of psychotherapeutic drugs and ultimately to have prescriptive authority. This need exists not only in the US military, but also in the civilian population, and not only in Hawai`i but across the nation. The program would be extended beyond the military setting to qualified professionals in the growing number of states that are expected to grant such authority to those with the training in psychopharmacology offered by such programs as the MSCP. There is a strong possibility that Hawai`i will eventually be among those states.

A partnership with Tripler Army Medical Center (TAMC), begun in Fall 2010, provides funding for faculty, course design and materials, student support, and clinical supervision for the next three years. The first cohorts of the MSCP program will be comprised of PhDs in clinical psychology that are on staff at TAMC and associated military facilities.

Proposal for MS Program in Clinical Psychopharmacology

Curriculum and support systems developed, assessed, and refined with TAMC support will enable the College to establish a quality program that can be sustained for the foreseeable future. The MSCP program curriculum is a rigorous one, challenging highly trained specialists in clinical psychology to gain mastery of the complex field of psychotropic medication and its application in therapeutic settings over the course of two academic years and two summers. Students must demonstrate, by the completion of the program, a high level of competence in eleven content areas of didactic and clinical knowledge; all aspects of information retrieval and communication underlying the program learning outcomes; and medication therapy management specific to psychopathology.

The College of Pharmacy is situated on Hawai'i Island; accordingly, the MSCP program will be delivered to students at TAMC by a combination of technology-mediated modalities and onsite, face-to-face interactions between faculty and students. Program delivery modes can be adapted to reach students across a broader geographical range, including those serving at US military hospitals outside the country.

Student numbers will range between four and ten per cohort for the first three years and will be determined by TAMC; however, it is anticipated that demand for the program will grow over the coming years as more states follow the US military in granting prescriptive authority to clinical psychologists who have acquired appropriate training. A steady flow of students from TAMC ensures a secure and consistent audience for this program.

Program effectiveness will be monitored and documented by a number of means, including internal assessment of student examinations, reports, and other performances; appraisals of clinical supervisors; and pass rates of MSCP students in the American Psychological Association's Psychopharmacology Examination for Psychologists, used by state licensing boards for testing licensed clinical psychologists who seek prescriptive authority. Student satisfaction and post-program success will be gauged through student interviews, surveys, focus groups, and employer surveys. The College has a fulltime Assessment Coordinator whose responsibilities include the MSCP program.

Direct program costs for the three years 2010-2013 are covered by TAMC, as indicated in the attached budget projection. At the current rate of graduate tuition for UH Hilo, total cost for the 33 credit program is \$11,484 for in-state students. TAMC will pay instate tuition and fees for its fellows.

The bulk of the program will be offered using distance learning technologies due to the diverse needs of the professionals seeking an MSCP degree. The program is designed to address the challenges of offering a reliable, consistent and accessible educational product with distance learning tools. Flexibility in the program's reliance on any given technology and resourcefulness in incorporating new online tools are built into the structure of the distance learning plan.

In sum, the MSCP program meets BOR criteria for evaluation of graduate programs and Executive Policy 5.201.Appedix B Guidelines for New Programs.

Institutional Context

The College of Pharmacy, University of Hawai'i at Hilo, admitted its first class of candidates for the Doctor of Pharmacy degree in Fall 2007 and has admitted a new class each subsequent fall. The College was granted Candidate status by the Accreditation Council for Pharmacy Education (ACPE) in June 2008 and anticipates full accreditation in July, 2011. In addition to the Doctor of Pharmacy program, which sustains four cohorts of 90 students each, the College will begin to offer the Ph.D. in Pharmaceutical Sciences in Fall 2011.

The College is comprised of two academic departments, the Department of Pharmaceutical Sciences and the Department of Pharmacy Practice; and support units, including the Office of the Dean, the Division of Academic Affairs, the Division of Student Affairs, the Department of Research, the Research Laboratory, and technical support staff. It shares the services of a Medical Librarian assigned by the UH Hilo Mookini Library, as well as those of the University's Divisions of Academic Affairs, Student Affairs, and Administrative Affairs. A full-time professional Assessment Officer serves all academic programs in the College.

A total of 22 faculty members will provide lectures for the MSCP program. Sixteen are full-time College of Pharmacy faculty (of which two have tenure), one is a full-time nursing professor and one is a full-time, tenured Chemistry professor. The remainder of the group is comprised of one part-time College of Pharmacy lecturer, two program coordinators and one librarian who will also provide instruction. Faculty CVs are in Appendix D.

Consistent with the UH system strategic outcome to address critical workforce shortages, the MSCP program will help address the health professional shortage in Hawai'i by expanding the competencies of licensed, doctoral-level psychologists currently practicing here. Consistent with the UH Hilo strategic goal to obtain sufficient resources to support enrollment growth and high quality programs, the MSCP program will be funded initially by the Tripler Army Medical Center and by leveraging existing resources and expertise within the College of Pharmacy. The MSCP program is also aligned with the College of Pharmacy strategic plan, which was approved by UH System President Greenwood on January 18, 2010 in accordance with UH Board of Regents Policy 4-3(d).

Specifically, the MSCP program advances the achievement of the following strategic education goals of the College of Pharmacy:

1. Launch graduate programs in both academic departments.
2. Develop continuing education programs to support lifelong learning for healthcare professionals/clinicians.

3. Broaden the pool of clinicians able to safely manage medications and improve patient access.

Program Goals and Objectives

The objective of the MSCP program is to provide a rigorous, advanced education in clinical psychopharmacology to licensed, doctoral-level, practicing psychologists to enable them to safely and effectively prescribe medications for their patients in accordance with all relevant state and federal laws.

Additionally, in states that do not allow such prescriptive authority, this program will enhance the ability of clinical psychologists to consult with primary care physicians and psychiatrists about appropriate drug therapy for their patients.

Initially the proposed program will provide graduate-level training in psychopharmacology for students who have earned a Ph.D. in Clinical Psychology and who also work for the Armed Services. Such clinical psychologists can gain the license to prescribe medication to mental health patients within the Armed Services.

Following the completion of the current contract between UH Hilo and Tripler Army Medical Center, the MSCP program will be made available to other eligible students seeking a higher degree of understanding of the principles of psychotherapeutic drugs (the complete, 46 page contract is available in proposal appendices, submitted to the BOR office). The concentrated training of psychotherapeutic drugs achieved in a Master of Science in Clinical Psychopharmacology program is attractive to licensed psychologists outside of the Armed Forces. Psychiatric nurses also may benefit from the didactic knowledge gained from this program. Individual courses in psychopharmacology, neuroscience and pharmacotherapeutics would also be of benefit to non-matriculated students seeking a broader background in these fields and may be made available to eligible students on a case by case basis.

Upon completing the MSCP program, successful students will be able to:

1. define, identify and recognize key concepts of terminology in all content areas specified in the Content Area matrix (see "Assessment of Student Performance" below)
2. review and explain at a high level of proficiency, both orally and in writing, the most current theories of the pathophysiology, etiology, signs and symptoms underlying mental health disorders and their psychopharmacologic treatment
3. choose the appropriate diagnosis and effectively apply psychopharmacological knowledge to resolve clinical psychopathological cases using "Subjective, Objective, Assessment and Planning" (SOAP) notes and case presentations, and differentiate mental disorders that are drug-induced or caused by somatic disease

4. analyze, interpret, integrate and evaluate pharmacologically-based clinical findings in psychological settings through literature review, class presentations and written analysis
5. devise, formulate and plan medication therapy management specific to psychopathology, with an emphasis on drug selection based on relative efficacy for the disorder, adverse effect profiles, food and drug interactions, and pharmacokinetics, and determine appropriate pharmacologic assessment and monitoring
6. demonstrate the ability to compare, contrast and interpret epidemiological, professional, legal and ethical findings in the clinical psychopharmacology literature and case presentations using information technology.

Program Need and Justification

Growing Trend: Prescriptive Authority for Clinical Psychologists

Currently, the U.S military, Guam and two states—New Mexico and Louisiana—allow prescriptive authority to licensed, doctoral-level psychologists who have completed advanced education in psychopharmacology and passed a national certification exam.

The proposed MSCP program would be the first in the nation offered by faculty with extensive expertise in pharmacology and integrated pharmacotherapeutics solely within a College of Pharmacy. It will enable clinical psychologists on staff at TAMC to meet the Army's educational requirements for psychologists with prescriptive authority.

Hawai'i is but one of several states considering new legislation to permit psychologists to prescribe medications; other states include Michigan, Missouri, Montana, Nebraska, New York, Oregon, Ohio, Tennessee, and Texas. Indicating a growing trend, there are already six post-doctoral programs in clinical psychopharmacology offered by US universities through schools of psychology or education.

Meeting Needs of the Military in Hawai'i. The US Department of Defense established the Psycho-Pharmacology Demonstration Project (PDP) in 1991, with the aim of preparing "psychologists who, with the necessary training and supervision, could safely and effectively use psychotropic medication as one component of their military armamentarium."¹ The PDP set rigorous standards that exceeded those recommended by the American Psychological Association. The criteria established by the PDP were drafted by a blue- ribbon panel of experts that included representatives from the American Association of Medical Colleges and the Accreditation Council for Graduate Medical Education. The proposed MSCP program is designed to bring students to levels needed to meet these standards.

¹ Merrick, Lynn. Prescriptive authority for psychologists: issues and considerations. Honolulu, HI: Legislative Reference Bureau, January 2007. <http://www.state.hi.us/lrb/rpts07/rxauth.pdf>

The military community in Hawai`i will enjoy tremendous benefits if there are additional clinical psychologists at TAMC who have prescriptive authority. According to the 2010 US Census, there were 40,874 active military personnel stationed in Hawai`i as of September 2009,² a population almost as large that of Hilo, Hawai`i. The successful training of clinical psychologists in the art and science of psychopharmacology will afford improved mental health treatment for our service men and women and their families.

Military personnel present distinctive needs in pharmacologic treatment for mental health problems arising from service-related experiences. Recent media attention to this issue highlighted concerns regarding the unique problems facing psychopharmacology in the military; factors include polypharmacy due to treatment of mental health and physical pain from combat, traumatic stress, multiple sources of controlled substances and increased risk of suicide.³ Furthermore, a strong co-morbidity between heavy alcohol use and mental health problems for active military personnel has been reported.⁴ Active military personnel also were reported not to comply with prescriptions for high blood pressure.⁵

The families of deployed military personnel require additional consideration. A recent study of 250,626 wives of deployed active-duty U.S. Army soldiers demonstrated statistically significant elevations in diagnoses of depressive disorders, sleep disorders, anxiety and acute stress reaction and adjustment disorders as compared to those married to non-deployed soldiers.⁶

Higher rates of mental and behavioral health visits were reported for children of deployed military personnel as compared to those of non-deployed soldiers.⁷ Over 600,000 mental and behavioral health out-patient visits were reviewed for this retrospective cohort study of children between 3-8 years of age. An 11% increase in visits was found after a parent was deployed. Conditions of attention-deficit, adjustment, behavioral, stress and autistic disorders were most frequently reported.

Serving the People of Hawai`i. Given that the military already has given prescriptive authority for clinical psychologists, this program will have a dramatic impact on the Hawai`i community.

² <http://www.census.gov/compendia/statab/2011/tables/11s0507.pdf>

³ Dao J, Carey B and Frosch D. For Some Troops, Powerful Drug Cocktails Have Deadly Results. New York Times, February 12, 2011. <http://www.nytimes.com/2011/02/13/us/13drugs.html?pagewanted=all>

⁴ Bray RM et al. 2005 Department of Defense Survey of Health Related Behaviors Among Active Duty Military Personnel. A Component of the Defense Lifestyle Assessment Program (DLAP), RTI International, December, 2006, page 218.

⁵ Bray RM et al. 2005 Department of Defense Survey of Health Related Behaviors Among Active Duty Military Personnel. A Component of the Defense Lifestyle Assessment Program (DLAP), RTI International, December, 2006, page 168.

⁶ Mansfield AJ, Deployment and the Use of Mental Health Services among U.S. Army Wives. N Engl J Med 2010;362:101-9.

⁷ Brien JH. Child behavioral, mental health visits increased when parent deployed. Pediatric Supersite, December 17, 2010. <http://www.pediatricsupersite.com/view.aspx?rid=78722>

As of January 2007, there were 1,373,534 Asian Americans and Pacific Islanders serving in active duty in the U.S. Armed Services, of which 3,237 are Native Hawaiian.⁸

Over the long term, the MSCP program offers a path to Hawai'i's clinical psychologists to provide better mental health care to the state's population, including those of Native Hawaiian background. When the state legislature grants prescriptive authority to clinical psychologists with an MSCP degree, the program will be poised to enable clinical psychologists to prescribe psychoactive medications to Hawai'i residents, some of whom will be Native Hawaiian.

Suicide and Alzheimer's disease are the ninth and tenth leading causes of death for Native Hawaiians and Other Pacific Islander (NHOPI) populations.⁹ Native Hawaiians and Other Pacific Islander populations are known to suffer from a disproportionately high rate of HIV/AIDs and present with the neuropsychological sequelae of this condition.¹⁰ Cultural and language barriers that affect the NHOPI population may be more readily overcome by psychologists who are treating the patient therapeutically as well as pharmacologically.

Issues of cultural sensitivity between the US military and Native Hawaiians are longstanding and complicated. In March 2010, however, concrete efforts to repair this relationship were made by the Army through the US Army Covenant with Native Hawaiians.¹¹ This document emphasizes the special relationship between the Army and the Hawaiian people including the health and well-being of the members of both groups. The proposed MSCP program at least partly meets the spirit of this covenant to help ensure that the mental health of Army personnel and the Native Hawaiian community are respected and nurtured.

As evidenced from letters of support by students, legislators, and community leaders (Appendix A and Appendix B), this program is viewed across the State as an important landmark for the improvement of the mental health of the residents of Hawai'i.

Workforce Enhancement in Hawai'i. The MSCP program offers the University the opportunity to address workplace shortages for Hawai'i. All of Molokai, two thirds of Hawai'i County and portions of Maui and Kauai are Federally Designated Mental Health Professional Shortage Areas (HPSA).^{12,13} Recent resident population projections suggest that the growth of non-military populations for all Hawaiian islands will double or triple in ten years,

⁸ http://dpc.senate.gov/dpcdoc.cfm?doc_name=fs-110-1-14

⁹ CDC [Leading Causes of Death by Race/Ethnicity](#), Health, U.S., 2009, Table 28.

<http://www.cdc.gov/nchs/data/hus/hus09.pdf#028>

¹⁰ CDC HIV/AIDS Fact Sheet, HIV/AIDS among Asians and Pacific Islanders. 2008.

<http://www.cdc.gov/hiv/resources/factsheets/API.htm>

¹¹ Doane L. Army Signs Covenant with Native Hawaiians, March 25, 2010. <http://www.army.mil/news/2010/03/25/36409-army-signs-covenant-with-native-hawaiians/>

¹² The State of Hawai'i Primary Care Needs Assessment Data Book 2007, page 52, map 6.

<http://hawaii.gov/health/doc/pcna2007databook.pdf>

¹³ The State of Hawai'i Primary Care Needs Assessment Data Book 2009, page 17.

<http://hawaii.gov/health/doc/pcna2009databook.pdf>

emphasizing the need to create educational opportunities in the mental health profession now to meet these increases in our future population.¹⁴ In Hawai'i, the location of suitably-trained specialists often results in certain rural areas being underserved. By providing a post-graduate degree program based on distance technology, the MSCP program improves the possibility that underserved areas and population growth estimates will be met by future graduates.

Addressing International Needs. The MSCP program meets international needs in an immediate way. The clinical psychologists serving in the Armed Forces are translocated around the world in their service to the United States. Of the students currently enrolled through TAMC, one serves as the Director of Telebehavioral Health and Surge Support program, which covers Japan, Guam and other foreign countries.

The goals of the MSCP program are commensurate with those of the UH Hilo International Student Services office, which "are to advance learning and scholarship, and to increase intercultural understanding and respect in a global community."¹⁵

Demand for Graduates

With the MSCP program and successful completion of the Psychopharmacology Examination for Psychologists (PEP), clinical psychologists serving in military hospitals, in Guam, and in Louisiana and New Mexico are assured of employment. As more states grant prescriptive authority to qualified clinical psychologists, demand for MSCP graduates will grow, in particular because of the particularly strong preparation in pharmacology and pharmacotherapeutics offered through the College of Pharmacy.

Professional Development for Clinical Psychologists. Whether or not prescriptive authority is granted to clinical psychologists in Hawai'i, potential demand for graduates is reflected by the improvements to patient care state-wide. The MSCP training program intensifies the student's knowledge in the psychopharmacology, physiology, epidemiology and brain chemistry of mental health conditions. The sophistication and scholarship that accompanies training of this kind is of direct benefit to patients being treated by MSCP graduates. Primary care physicians, who currently treat the majority of patients with mental health disorders, also will benefit from an improvement in knowledge within practitioners in the mental health care community who seek the MSCP program degree.

¹⁴ Dall T, The Lewin Group, Current and Future Demand for Physicians in the U.S. and Hawaii (preliminary findings)
Hawaii Physician Workforce Summit, June 29, 2010 http://www.ahec.hawaii.edu/docs/Dall_HI_presentation_6-29-10.pdf

¹⁵ <http://www.uhh.hawaii.edu/studentaffairs/international/>

The Hawai'i Psychology Association is comprised of over 200 members. Clinical psychologists will actively seek to further their education in psychopharmacology in order to better treat their patients. In broader terms, the US Bureau of Labor Statistics estimates that 34% of psychologists are self-employed, mainly as private practitioners and independent consultants. Employment growth for psychologists ranges between 11 and 26 percent, depending on specialty. The Bureau also noted that employment for psychologists, which includes those with a master's degree in psychopharmacology, "will grow because of increased demand for psychological services in schools, hospitals, social service agencies, mental health centers, substance abuse treatment clinics, consulting firms, and private companies."

Relationship to Other Programs at UH Hilo and in the UH System

The UH Hilo College of Pharmacy is the only institution in the state of Hawai'i that offers graduate study in pharmacy practice and the pharmaceutical sciences. The MSCP program will similarly be unique in the system and the state.

The Human Physiology and the advanced MSCP courses will draw on faculty of the College of Pharmacy. The first two courses in the program, The Biochemical Basis of Therapeutics I and II, are taught by a UH Hilo biochemistry professor. Future contributors may be drawn from other UH Hilo disciplines and from JABSOM and CRCH.

Similar Programs at Comparable Institutions

The proposed MSCP program will be the first in the nation that is wholly situated in a college or school of pharmacy. Comparable masters programs are currently offered through traditional psychology departments, or, in the case of New Mexico State University, the College of Education. Tripler Army Medical Center formerly contracted with Argosy University in Honolulu to provide a master's program in psychopharmacology.

The following table displays other clinical psychopharmacology students in the nation. Appendix C provides a comparison of the curricula of these programs with that of the UH Hilo College of Pharmacy MSCP program.

UH Hilo	College of Pharmacy	Master of Science in Clinical Psychopharmacology
Nova Southeastern University	Center for Psychological Studies	Master of Science in Clinical Psychopharmacology
Argosy University	American School of Professional Psychology	Master of Science in Psychopharmacology
Fairleigh Dickinson University	School of Psychology	Postdoctoral Master of Science in Clinical Psychopharmacology

Alliant International University	California School of Professional Psychology	Postdoctoral Master of Science in Clinical Psychopharmacology
New Mexico State University	College of Education	Interdisciplinary Master of Arts in Clinical Psychopharmacology for Psychologists

Program Description and Degree Requirements

The MSCP curriculum is comprised of 33 required credits. Beginning with a strong foundation in biochemistry and physiology, the curriculum for the MS degree in Psychopharmacology reflects current best practice in teaching evidence-based medication therapy management through intensive coursework in Integrated Pharmacotherapy.

The integrated pharmacotherapy series is the core of the curriculum and combines all aspects of pharmaceutical care with therapeutic knowledge. Advanced Psychopharmacology I and II, taught during the final two semesters, serve as the capstone courses. This curriculum is designed to provide an in-depth coverage of pharmacotherapy associated with the treatment of mental disorders.

A list of program courses with catalog descriptions is available upon request, as are a schedule displaying two cohort cycles with instructors; and course syllabi.

As indicated in the matrix below, the psychopharmacology practicum must be completed over two semesters and a summer. This is indicated by the distribution of credits for the practicum, which is taken over three terms: 0 credits for the fall and spring and 2 credits in the summer.

The Psychopharmacology Practicum courses will require students to demonstrate competence in medication therapy management specific to psychopathology. Practicum hours are similar to an internship in that the practicum hours are performed outside of the classroom in a clinical setting, for eight hours per week, during two semesters and a summer. The clinical practicum will contain a minimum of 400 hours. Each candidate must see a minimum of 100 separate patients. Practicum components will be consistent with American Psychology Association recommendations.

Students will be supervised by a qualified clinical practitioner with demonstrated skills and experience in clinical psychopharmacology in accordance with the prevailing jurisdictional law. Students will be actively involved in consultation with physicians and/or appropriately credentialed psychologists regarding the prescribing of psychoactive medications. At the end of the training program, a capstone competency evaluation will be completed. For the TAMC cohorts, this evaluation will be in accordance with the "Memorandum UH Hilo-TAMC Psychopharmacology Practicum" (available upon request). For subsequent, non-TAMC cohorts, a similarly rigorous review will be applied.

Proposal for MS Program in Clinical Psychopharmacology

Semester	PHPS	Course Title	Credits
First Year Fellows			
Fall	450	The Biochemical Basis of Therapeutics I – Biomolecules	3
	451	The Biochemical Basis of Therapeutics II- Metabolism	3
	606	Human Physiology	3
Spring	601	Integrated Pharmacotherapy I	7
Summer	602	Integrated Pharmacotherapy II	7
Second Year Fellows			
Fall	603	Integrated Pharmacotherapy III	4
	604	Advanced Psychopharmacology I Psychopharmacology Practicum	2
Spring	605	Advanced Psychopharmacology II Psychopharmacology Practicum	2
Summer	607	Psychopharmacology Practicum	2
Total Credits			33

In addition, students seeking prescriptive authority will be required to pass the PEP, offered by the American Psychological Association’s (“APA”) College of Professional Psychology to eligible licensed psychologists. The PEP is used by state licensing boards for testing licensed clinical psychologists who seek prescriptive authority. This examination is described in more detail in the Program Assessment section below.

Technology-Mediated Course Delivery. Program students will be serving at TAMC on the island of Oahu, while program faculty and staff members are situated at the College of Pharmacy in Hilo. Technology-mediated learning, which incorporates various approaches to computer-based education, will be used to satisfy the needs of MSCP students.

Content courses, such as the biochemical basis of therapeutics and human physiology, are presented in a combination of three methods:

1. pre-recorded lectures made available asynchronously (*i.e.*, recordings are posted online for students to access at their convenience)
2. online, seminar-style onsite workshops associated with the courses, (*i.e.*, students interacting live with the professor who flies to Oahu)
3. synchronous online discussions (*i.e.*, professor located in Hilo or elsewhere talks in real time with students over on Oahu via videoconferencing).

The workshop and synchronous online sessions are recorded and can be accessed by students later for review. Students can access lectures at anytime. This multi-modal format enables students to master large amounts of information according to their own life and work schedules, while allowing for instructors to reinforce learning and provide prompt feedback. In future cohorts, which may involve students in practice in non-military settings in other states, on-site visits can be replaced with synchronous online sessions using current technology.

Ninety percent of the didactic coursework in the program will be offered via distance education. In the first cohorts, located at Tripler Army Medical Center, instructors will make live on-site visits between three and five times per course. In subsequent cohorts, the didactic courses may become completely online. In addition, students will complete 400 hours of supervised work in clinical settings.

As noted above, for the TAMC cohorts, the practicum courses will be offered onsite and students will perform 400 hours of clinical training over two semesters and a summer, under the direct supervision of a qualified onsite clinician. In future cohorts, students will be subject to the same hours requirement and will be responsible for identifying their own clinical training sites near their place of residence, with program staff certifying the appropriateness of the site and clinical supervisors and ensuring that program protocols and assessment requirements are met.

MSCP Program Admission

This program is designed primarily for students who hold a PhD in Clinical Psychology. The first cohorts will be comprised of qualified staff of the Tripler Army Medical Center.

The MSCP program initially will be made available to students from TAMC. Currently, clinical psychologists with an MS in Clinical Psychopharmacology in the Armed Services are granted prescriptive authority. The program provides the immediate need to train these students. Establishment of a successful program that meets the needs of TAMC will enable the College of Pharmacy to offer the program to students outside of TAMC in the future.

The proposal describes the program as it would exist once approval is granted by the UH Board of Regents. The grant began in the fall of 2010 to cover the cost of the four current students in the experimental program and to begin the process of creating the program

Following the completion of the contract with TAMC, the MSCP program will be made available to other eligible students seeking a higher degree of understanding of the principles of psychotherapeutic drugs. The concentrated training of psychotherapeutic drugs achieved in a Master of Science in Clinical Psychopharmacology program is attractive to licensed psychologists outside of the Armed Forces. Psychiatric nurses also may benefit from the didactic knowledge gained from this program. Individual courses in psychopharmacology, neuroscience and pharmacotherapeutics would also be of benefit to non-matriculated students seeking a broader background in these fields.

Admissions Process. Students will submit all application materials to the UH Hilo College of Pharmacy MSCP Program Admissions Committee, who will select entrants into the program. The admission criteria and procedures conform to the UH Graduate Division's standards post-graduate programs, posted at <http://hilo.hawaii.edu/academics/graduate>.

Minimum Qualifications for Acceptance. Each applicant for the MSCP program must hold a baccalaureate degree and a graduate (PhD) degree in clinical psychology from a regionally accredited U.S. college or university, or its equivalent from a recognized non-U.S. institution of higher learning. The standards of the degree in question must be equivalent in scholarship requirements to those maintained in the graduate program at the University of Hawai'i at Hilo.

Grade Point Average (GPA). The applicant must have a GPA of 3.0 or the equivalent from the last 60 semester credits (or equivalent) in the undergraduate degree completed, or must hold a graduate degree with a GPA of 3.0 or better in his/her graduate program. Under special circumstances, a GPA of 2.75 or higher will be considered based on the applicant's other qualifications and subject to the petition process noted above.

Program Administration and Advising

Administration. The MSCP program will be administered by the following:

- The MSCP Director, Edward Fisher, PhD, who also serves the CoP Associate Dean for Academic Affairs. The Director has led the development of the MSCP Program curriculum; oversees MSCP program administration and academic quality; and evaluates and grades research papers.
- The MSCP Coordinator, Judi Steinman, PhD, who developed MSCP program syllabi with faculty, manages staff, oversees lecture recording and online learning logistics;

- lectures in pharmacoepidemiology; evaluates research papers; and advises students.
- The MSCP Clinical Coordinator, Danita Henley, PharmD, who will oversee the clinical components of Integrated Pharmacotherapeutics and Advanced Psychopharmacology; present live workshops; evaluates SOAP notes, case presentations; and advise students.
- The CoP Assessment Coordinator, Paula Zeszotarski, PhD, who will prepare assessment tools, gather and maintain assessment records, conduct program assessment, including focus groups, surveys, and post-graduate performance.

Advising. Students will be advised by the Program Coordinator and Clinical Coordinator, each of whom will be responsible for overseeing the academic progress and well-being of between four and ten students per year.

The College recognizes the importance of maintaining open and frequent communication between students and faculty. While faculty remain primarily responsible for delivery of course content, the frequent onsite workshops and web-conference-style online sessions will ensure, for Hawai'i-based students, a high level of interaction with faculty and program staff.

Curricula vitae of program staff are included with those of instructional faculty in Appendix D.

Assessment of Student Performance and Other Indicators of Program Effectiveness

The faculty program committee is responsible for designing and implementing direct assessment of student learning, identifying signature assignments, refining rubrics, gathering and reviewing the results of assessment activities, and using these results to sustain quality in program pedagogy and curriculum.

Since May 2, 2011, the College has employed a fulltime Assessment Coordinator (CV is included in Appendix D with those of instructional faculty and program staff.) While faculty will remain responsible for assessing student learning by direct means, the assessment director will focus on indirect assessment. She will work with student focus groups and create surveys on passing rates on the American Psychological Association's College of Professional Psychology Psychopharmacology Examination (PEP), job placement of students, and the effects on their careers of having obtained the MSCP degree had on their careers. Indirect assessment tools will also include benchmarks such as student evaluations, alumni evaluations and faculty evaluations. Evaluations will be tailored after the already existent assessment tools in the CoP and will be combined with existent assessment tools available for evaluation of distance learning programs.

In addition to program assessment processes, TAMC will be monitoring individual student performances as specified in the contract between TAMC and UH Hilo.

Assessment of Mastery of Content and Professional Skills. The overall learning outcomes of the program are to have students demonstrate mastery in eleven knowledge content areas. Additionally each knowledge content area has its own learning outcomes. The courses offered in the program are listed in the table on the following page mapped to the knowledge content areas. A detailed list of areas and outcomes is available for review in the Board of Regents' office.

Publication of Learning Outcomes. The learning outcomes will be published in the program summary sent to all prospective students, on the program's departmental website, and in the program's *Guide For Graduate Students* given to all prospective and admitted students.

Mapping Learning Outcomes into the Program. The CoP is currently creating lecture learning objectives for all core courses, when such recording lectures are used in the program, along with the learning objectives of new lectures to be recorded/ provided will be mapped to the program learning outcomes to assure students are being provided the information necessary for mastery of this discipline.

Assessment Events. Course syllabi are available for review in the Board of Regents' office. The syllabi describe assessment activities include multiple choice exams, essay exams, written assignments (SOAP notes and research papers), presentations (research and cases). Students will be expected to be able to communicate both orally and in writing at a high level of proficiency. This will be evaluated by grading written assignments (SOAP notes and research papers) and both research and case presentations. Final exams are typically cumulative. All presentations and written assignment will be graded by creating rubrics for each activity.

Content Knowledge Areas. Students are expected to master eleven knowledge content areas, which are derived directly from the American Psychological Association's College of Professional Psychology Psychopharmacology Examination (PEP), described below. TAMC students must pass this examination in order to receive their degree, in accordance with the UH Hilo TAMC contract. These areas are summarized below; a detailed list of the components of each area is available on request.

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Content Knowledge Areas	Courses
Integrating clinical psychopharmacology with the practice of psychology	Advanced Psychopharmacology I (PHPS 604)
	Psychopharmacology Practicum (PHPS 607)
Neuroscience	The Biochemical Basis of Therapeutics I – Biomolecules (PHPS 450)
	The Biochemical Basis of Therapeutics II - Metabolism (PHPS 451)
Nervous system pathology	Human Physiology (PHPS 606)
	Integrated Pharmacotherapy II (PHPS 602)
Physiology and pathophysiology	Human Physiology (PHPS 606)
	Integrated Pharmacotherapy I,II,III (PHPS 601, 602, 603)
Biopsychosocial and pharmacologic assessment and monitoring	Advanced Psychopharmacology I (PHPS 604)
	Psychopharmacology Practicum (PHPS 607)
Differential diagnosis	Integrated Pharmacotherapy II (PHPS 602)
	Psychopharmacology Practicum (607)
Clinical psychopharmacology	Advanced Psychopharmacology II (PHPS 605)
	Psychopharmacology Practicum (PHPS 607)
Research	Advanced Psychopharmacology II (PHPS 605)
Professional, legal, ethical and interprofessional issues	Integrated Pharmacotherapy III (PHPS 603)

The major external means of assessment of student learning is the American Psychological Association's ("APA") College of Professional Psychology offers the Psychopharmacology Examination for Psychologists (PEP) to eligible licensed psychologists. The PEP is used by state licensing boards for testing licensed clinical psychologists who seek prescriptive authority. The APA offers the PEP to qualified psychologists to meet the regulatory requirements for those states that have prescriptive authority. The PEP is recognized by The Association of State and Provincial Psychology Boards (ASPPB), the alliance of state, provincial, and territorial agencies responsible for the licensure and certification of psychologists throughout the United States and Canada.

The PEP is a three-hour examination administered electronically to test didactic comprehension in psychopharmacology. The PEP was designed to assess knowledge in the ten content areas that serve as the foundation of the proposed MSCP program: neuroscience, nervous system pathology, physiology and pathophysiology, biopsychosocial and pharmacologic assessment and monitoring, differential diagnosis, pharmacology, clinical psychopharmacology, research, and professional, legal, ethical, and interprofessional issues.

Assessment of Student Satisfaction and Post-Graduate Performance. Other assessment tools will include benchmarks such as student evaluations, alumni evaluations and faculty evaluations. Evaluations will be tailored after the already existent assessment tools in the CoP and will be combined with existent assessment tools available for evaluation of distance learning programs.

Program Review. The MSCP program will also be integrated into the UH Hilo program review schedule and administrators and faculty will complete a self study, external review, and report conforming to UH Hilo program review guidelines. In accordance with program review procedure, the review will culminate in a meeting with the Vice Chancellor for Academic Affairs at which representatives of the program and the college will meet with the VCAA to establish next steps for the program.

Anticipated Student Demand and Enrollment

Once the MSCP program is initiated there will be significant interest from local and national students who will want to participate in such a truly unique learning opportunity. Currently, four students have registered for classes as non-classified graduate students, even before the MSCP program entered the new program approval stage. It is anticipated that between five to 10 students per year will enter the program. **Currently there are four students who are supported by the contract from TAMC and are taking MSCP experimental courses. Once the program becomes official, these four students may elect to petition to transfer these credits into the program. The procedure for transfer of graduate credits has been established and can be found in the UHH Graduate Catalog. All syllabi clearly state that the courses are experimental.**

Interest in the program is clearly expressed in the letters from students currently registered for classes as well as from prospective students (see Appendix A).

Resources Required and Resources Available

Tripler Army Medical Center is providing \$132,480; \$92,549; and \$ 49,229 over the three years Fall 2010-Summer 2013. These funds are being used for program development, curriculum development and delivery, and support staff, as described in the program costs section below.

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The salaries of the fulltime program coordinator and fulltime program clinical supervisor are covered by the TAMC contract, as are traveling expenses and supply expenses for recording, transmitting and archiving course material. The curricula vitae of these coordinators are included with those of faculty in Appendix D.

TAMC is also paying full program tuition for professionals enrolled in the MSCP program.

Other resources needed for the program are available from existing College or UH Hilo or UH system sources.

Faculty. A total of 22 faculty members will provide lectures for the MSCP program. Sixteen are full-time College of Pharmacy faculty (of which two have tenure), one is a full-time nursing professor and one is a full-time, tenured Chemistry professor. The remainder of the group is comprised of one part-time CoP lecturer, two program coordinators and one librarian who will also provide instruction.

The College of Pharmacy is distinctively qualified to offer the MSCP program with its existing faculty. Currently, the College of Pharmacy offers and administers a professional degree in Pharmacy (PharmD) and so has faculty qualified and capable of teaching, mentoring and supporting graduate students in psychopharmacology. College of Pharmacy faculty will provide the prerecorded didactic lectures described above and will interact with students during the semester of instruction via site visits, synchronous online sessions, and email and other communication on Lulima.

Additional support staff and educators who cover specific topics (e.g., law, ethics, regulatory issues) currently are supported through the contract with TAMC Existing support staff, the Planning Director of the Tripler grant, and CoP Student Services staff will be able to deal with correspondence, admissions, and administration of the MSCP program.

The curriculum outlined in this proposal includes lectures already offered to our current Pharm.D. students (videorecorded for MSCP students to view at their convenience in accordance to course scheduling) along with newly created lectures, courses, seminar hours, student grading and assisting, and operations support that will be required solely for the program.

Because there will be significant overlap between the content of the MSCP degree and the current PharmD degree, only 2.0 new faculty FTE's (non-tenure track) will be needed, and there will be no significant increase in workload for existing faculty FTEs. These additional faculty members will be non-tenure track under the current funding paradigm, since they are supported by a federal grant. One is the Program Coordinator, who is responsible for the overall integration of the material, and for the basic science component. The other FTE will be a Clinical Coordinator who will be responsible for all of the clinical aspects of the program except for the practicum. Vitae of these personnel are attached in Appendix D.

Student Services. The COP Director of Student Services (DSS), who supervises one full time Academic Advising Specialist, one full time Admissions Counselor and two part time student employees will oversee the admission process for the MSCP program. The staff of the college OSS addresses the needs of prospective and incoming students as well as aids the current students in their progression through their degree program. Financial aid is not an issue for students in the TAMC cohorts, who receive salaries from TAMC, which also pays their tuition and fees. However, the UH Hilo Financial Aid Office provides guidance in financial aid for all eligible students.

UH Hilo provides the full range of services to students, including doctoral students: Admissions, Records (includes registration), Counseling, and Financial Aid through the Division of Student Affairs.

Library Services. UH Hilo's Mookini Library supports the MSCP program's goal of embedding library resources into the curriculum through various avenues such as assignments requiring use of published materials (available online), the library's specialized information portal, and course reserve materials. The library has purchased or licensed all the resources from the Basic Resources for Pharmaceutical Education List to support the College of Pharmacy. The library subscribes several specialized drug information databases and is part of the Hawai'i Medical Library Consortium.

A full-time permanent medical librarian serves as library liaison for the College of Pharmacy. The medical librarian is the primary contact for the pharmacy program and the university library. The librarian develops and maintains information resources in pharmacy and biomedical sciences; helps select, evaluate, and monitor print, electronic, and web resources. In addition, the library has designated a librarian to provide support for all distance learning students and programs. The DL librarian maintains a webpage with links to tutorials and to UH system library services and resources as well as to UH Hilo online course reserve materials

Technology and Technology Services. College of Pharmacy IT infrastructure includes three Apple XServe servers, one Mac Pro Server, an XServe RAID and a Tape Backup unit, as well each faculty and staff member has access to either a Mac or PC, laptop or desktop computer. Servers now support BLOGs, WIKIs VPN and web-based calendars in addition to other services. Classrooms are equipped with multimedia, access to the internet, distance-capable interactive television and video, as well as access to standard instructional software. The college IT infrastructure is maintained and supported by two full-time staff members with a third being recruited during the present school year.

College of Pharmacy utilizes different software programs to provide recorded lectures, synchronous online meetings and asynchronous access to course material. Programs such as Elluminate Live!, Adobe Connect and Webex provide options for lecture capture, delivery, recording, storage, and asynchronous access; webpage sharing; online file sharing; and web conferencing between instructor and students in class or individual students. The College

also has full access to the UH system's Lulima (Sakai) online Learning Management System and the system's broad range of instructional technology online resources. In addition to instructional use of technology, UH Hilo, as part of the UH system, has fully functional administrative and student services computer systems to handle a wide range of campus functions.

Through the UH Hilo's Office of Instructional Technology and User Services and College of Continuing Education and Community Service, faculty have access to workshops and one-on-one assistance on technology-based course delivery and course design.

Physical Facilities. The physical requirements for the MSCP program are minimal. TAMC's Department of Psychology has a conference room available for the scheduled face-to-face seminar-like workshops, and TAMC provides the clinical settings for the practicum sessions.

In Hilo, lectures are recorded in existing classrooms with existing equipment and software. Offices are provided for the program coordinator and for the clinical supervisor.

A description of current College of Pharmacy office, research, and classroom facilities is available on request.

Anticipated Cost

The following table provides the academic cost and revenue template for the MSCP program, notes for projected costs and revenues, and narrative explaining specific items.

Costs include faculty salaries, administrative program support, faculty salary, information technology support, travel, and equipment and supplies. Costs of the first three years of the program will be covered by funding from Tripler Army Medical Center, which will also pay student tuition.

Enrollment is projected to increase by five students per year as each new cohort begins. Once the program is established, a total enrollment of 20 students per year is projected, nine to eleven in their first year and the rest in their second (final year). At the current rate of graduate tuition for UH Hilo, total cost per student is \$11,484 for Hawai'i residents.

It is estimated that tuition from nine students per cohort will cover the costs of running the program if the TAMC contract were to expire. Calculations are based on a current tuition of \$11,484 per student and program costs of \$216,000.

The financial agreement between UH Hilo College of Pharmacy and TAMC constitutes the commitment of resources to this program for years 2010-2013. The financial agreement is

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summarized below and the complete contract with TAMC is included in the material provided to the Board of Regents office.

The proposal describes the program as it would exist once approval is granted by the UH Board of Regents. The grant began in the fall of 2010 to cover the cost of the four current students in the experimental program. The contract is currently for three years, but we strongly believe that as long as we provide a successful program, this will be extending minimally another two years, as TAMC uses a five-year cycle. The numbers of students listed for the 2011-2012 and 2012-2013 academic years are based on estimates given to us by TAMC. Once mature the program will have 20 students and the contract is based on up to 20 students. The Template does not reflect the funding for creating the program during the 2010-2011 academic year that was provided by TAMC.