

Graduate Catalog

Graduate Admission Policies

The University of Hawai'i at Hilo is an equal opportunity institution of higher education and does not discriminate on the basis of race, gender, sexual identity, age, disability, religious affiliation, or country of origin.

Application Requirements

Note: The following requirements are the minimum requirements for any UH Hilo graduate program. Particular graduate programs' requirements may differ from the minimum. Therefore, prospective students also should check requirements of their program of interest.

Applicants applying for admission to graduate programs must submit the following items directly to the Office of Admissions:

1. A completed application form and appropriate fee. The application form and fee information are available online (hilo.hawaii.edu) or from the Office of Admissions.
2. One official transcript from each post-secondary institution attended. These transcripts must be sent directly from the institution or submitted by the applicant in a sealed institutional envelope if accompanying the application. Transcripts from within the UH system are not required.
3. Official Graduate Record Examination scores or other qualifying test scores as determined by the program (check admissions requirements in each program description). International applicants whose native language is not English, or who have not attained a baccalaureate or higher degree from an English-speaking institution, also must submit TOEFL scores.
4. A minimum of two letters of recommendation attesting to the academic ability or other qualifications of the applicant.
5. Statement of academic and/or long range goals.
6. Verification of financial status (for all international students).

Non-accredited U.S. or International Institutions

Degrees from non-accredited U.S. or international institutions are not recognized automatically. Applications of prospective students with such degrees will be evaluated on a case-by-case basis.

International Applicants

In addition to the above requirements, international applicants must submit official academic records in the original language accompanied by certified English translations. These translations must bear the embossed seal or inked stamp of the issuing institution or government agency and the original signature of the translator. Translations must be complete and exact word-for-word translations of the original documents. International applicants with a Grade Point Average of less than a B (or equivalent) in their undergraduate work or less than a B in 12 or more credits of post-baccalaureate work are not eligible for admission.

Minimum Qualifications for Acceptance

Baccalaureate Degree

Each applicant must hold a baccalaureate degree or graduate degree 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 undergraduate program at the University of Hawai'i at Hilo.

Students may be required by programs to fulfill additional coursework beyond the major requirements if such courses are deemed important to the student's ability to successfully complete the course of study. These courses will be determined prior to the student's official admission notification, and will be included in the acceptance letter. Programs and program advisors are responsible for monitoring student completion of these courses.

If an applicant initially has been determined to be inadmissible based on his/her academic record, the graduate program may petition the Graduate Council on behalf of the applicant to reconsider the application. The petition must present evidence (e.g., relevant education, training, experience, publications) that the applicant is capable of successfully completing the desired graduate program.

Graduate Record Examination (GRE)

The GRE is required for all applicants for acceptance. Some programs may require a professional test specific to the program of study in lieu of the GRE for admission purposes. Minimum scores on the GRE or professional tests are set individually for each program. Applicants who have completed a graduate program at a regionally-accredited U.S. institution or its equivalent from a recognized non-U.S. institution are not required to submit GRE scores.

Test of English As A Foreign Language (TOEFL)

In addition to above requirements, an applicant whose native language is not English must demonstrate English language proficiency as a partial admissions requirement. Evidence of proficiency in English is successful completion of the Test of English as a Foreign Language (TOEFL) with a minimum score of 550 (paper version) or of 213 (computer version). Applicants who have baccalaureate degrees from English-speaking institutions are exempt from the TOEFL requirement.

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.

Please Note: The meeting of minimum requirements does not assure acceptance into a UH Hilo graduate degree program. Acceptance into a graduate program is competitive and decided upon by each individual graduate program.

Admission Procedures

The Office of Admissions is responsible for accepting application materials for all graduate programs. Admissions professionals screen for minimum qualifications of each application and distribute completed applications to each respective program for decision of acceptance or rejection. The admissions committee within individual programs will make the final decision on applications that meet minimum university qualifications.

The application deadline for fall semester admission is February 1. The application deadline for spring semester admission is November 1. Applications received after the priority deadlines will be considered on a space available basis. Each applicant will be notified of receipt of the application. Incomplete applications will be held in the Office of Admissions until complete and ready for review by the graduate program. Applications that remain incomplete at the end of the selection process will

be labeled as “incomplete,” and applicants will be denied admission. Applicants will be notified of this action.

Official notification of acceptance or rejection generally is mailed by the Office of Admissions between March 1 and May 30 for fall admission. For spring admission, notification is generally mailed between November 15 and December 15. Applicants should not make definite arrangements to attend the University until they receive formal notice of acceptance from the Office of Admissions.

Evaluation of transcripts of international students and of non-traditional grading will be done at the program level if the applicant meets other minimum qualifications. The Graduate Division and Office of Admissions will help with interpreting unusual grading practices and other special cases.

Classification of Students

Regular Admission

Regular admission may be granted to applicants who hold a baccalaureate degree with a grade point average (GPA) of 3.0 or better for the last 60 semester credits (or equivalent), or who hold a graduate degree with a GPA of 3.0 or better from an accredited institution, or through the petition process noted above. Determination of acceptance, however, is made by the admissions committees of individual programs. Students accepted by program admission committees are defined as “classified students.”

Denied Admission

Students whose academic records do not meet the minimum requirements, and/or whose admission is not supported by the program and the Graduate Division, will be denied admission.

Visiting Graduate Student

Applicants who are pursuing an advanced degree in another institution and who wish to study at UH Hilo for a limited time may apply for admissions as visiting graduate students. To be eligible, applicants must be enrolled in and actively pursuing a graduate degree program at a regionally accredited institution of higher education and be in good academic standing.

Visiting graduate students register on a space available basis and only in courses for which they are judged to be eligible by the instructor of the course and the chair of the individual graduate program.

Typically, visiting graduate students enroll as “unclassified graduate students.” They may be allowed to change their status from unclassified to regular status if they apply and are accepted by a graduate program at UH Hilo.

Admission as a visiting graduate student does not guarantee subsequent admission as a regularly admitted graduate student. A visiting graduate student who decides to apply for admission as a regular graduate student must apply for acceptance via the standard admissions process as do all other applicants.

Visiting graduate students who later become admitted as regular students may request to have courses taken under the visiting student status credited toward the new degree objective. They should consult with their graduate programs, which then make appropriate recommendations to the Graduate Division.

Unclassified Graduate Student

Students with documented baccalaureate degrees who do not meet the minimum requirements for admission to a program, or who for any other reason have not been formally accepted into a program, may attempt to register for selected courses. Such registration is done on a space-available basis, and is with the written consent of both the faculty teaching the course and the chair of the program. Admission into a course as an unclassified graduate student does not guarantee admission as a regularly classified graduate student at a future date. A limit of 9 credit hours at UH Hilo may be taken at the graduate level by unclassified graduate students in their academic career. Waivers to this rule may be granted with the permission of the instructor, graduate program chair, and chair of the Graduate Council (the latter acting on behalf of the Graduate Council).

Applicants who are sponsored by an educational institution or governmental agency and who wish to undertake a special program of study, research, or training without a degree objective may apply as unclassified graduate students. These students also are limited to 9 credit hours at UH Hilo.

All applicants for unclassified graduate student status are required to submit the following:

1. A graduate application;
2. Proof of baccalaureate degree;
3. A brief statement of objectives specific to each class in which the applicant hopes to enroll.

Unclassified graduate students are not required to submit the application fee, GRE scores, or letters of recommendation. If an unclassified graduate student later applies, and is accepted, into a graduate program, the student may petition for acceptance of credits taken while in unclassified status, but acceptance of the petition by the graduate program is not assured.

Undergraduate students in their final semester of coursework before being granted a baccalaureate degree may petition to take graduate coursework for credit in the status of an Unclassified Graduate Student. Permission must be received from the student’s academic advisor, course instructor, and graduate program chair. This coursework must be in excess of the requirements for the baccalaureate degree. Failure of the student to obtain the baccalaureate degree at the end of the semester in which the graduate coursework is undertaken will invalidate any graduate credits from the coursework. Students must present evidence of successful completion of the baccalaureate degree to the Graduate Division Office.

Additional Considerations

Concurrent Degrees

An applicant may apply to more than one graduate program but may enroll in only one program initially. Concurrent enrollment in more than one program is strongly discouraged. The individual programs applied for, however, will determine individually what constitutes the minimum course load, and the student (with the approval of both program chairs) may decide to attempt both programs.

Reapplication

Applicants who have been denied admission to a graduate program at UH Hilo because of failure to meet academic standards may reapply for admission after completing at least 12 semester credits of post-baccalaureate course work. The courses must be numbered 400 or above and completed with a GPA of 3.0 or above.

Completion of additional course work does not guarantee admission. To be reconsidered for admission, applicants must follow the standard application process and will be considered along with all other applicants. If admitted, no more than 12 semester credits of relevant post-baccalaureate course work may be applied toward the new degree objective.

If Admitted, But Not Enrolled

Admission may not be postponed or deferred. Newly-admitted students who do not register during the semester for which they are admitted or who withdraw from all courses before the last day to drop are considered no-shows. Their admission status will be rendered invalid. To reapply for admission, they must contact the Office of Admissions for instructions.

Returning Student

If a student has not registered continuously, that student must reapply for admission. Readmission is not guaranteed.

International Student Documents

International student documents are processed by the International Admissions Office. Visa questions will be handled only by this office.

Graduate Tuition and Fees

Tuition for the 2011-2012 Academic Year

Graduate Students Other Than Pharmacy

<i>Classification</i>	<i>PCH (per credit hour)</i>	<i>FT (full time)</i>
Resident	\$ 348.00	\$ 4,176.00
Non-Resident	\$ 800.00	\$ 9,600.00

Tuition for Summer, 2012

- Per Credit Hour (PCH): \$ 458.00

Pharmacy Doctoral Students

- Resident: \$ 17,364.00 (per academic year)
- Non-Resident: \$ 34,729.00 (per academic year)

Fees for the 2011-2012 Academic Year (Per Semester)

<i>Fee</i>	<i>5+ Credits</i>	<i>1-4 Credits</i>
Student Activities	\$ 18.00	\$ 9.00
Student Government	18.00	9.00
Student Publications	19.00	9.50
Student Health Fee	7.00	7.00
Student Recreation	5.00	2.50
Campus Center	7.00	3.50
Student Life Center	78.00	78.00
Total	\$ 152.00	\$ 118.50

Application Fee

A \$50 fee is required for all applicants. This fee is not refundable, not transferable to another semester, and is required each time an application is submitted.

Late Registration Fee

Students will be assessed a \$30.00 fee for registering during the late registration period, which begins on the first day of instruction.

Special Fees and Charges

<i>Fee/Charge</i>	<i>Amount</i>
Student Identification Card	\$ 10.00
Graduation Application Fee	15.00
Transcript of Record	5.00
Rush Transcript	15.00
Institutional Credit by Examination	15.00
Replacement of laboratory equipment	Cost of item(s) broken or lost

Registration and Degree Requirements

Registration

Graduate students are encouraged to participate in early registration whenever possible. Graduate students must meet general guidelines and payment schedules set by the university.

Full-Time Registration Requirements for Students

Graduate students must register for six or more credits during the Fall or Spring semesters and, when applicable, three credits during the summer to be considered full time.

Academic Standards

A cumulative grade point average (GPA) of at least 3.0 (on a scale where A = 4.0) in courses required by the graduate program is required in order to maintain satisfactory academic standing and graduate degree certification. When the cumulative GPA falls below 3.0, the student will be placed on academic probation. Once a student is placed on probation, the student has two semesters to attain a cumulative GPA of 3.0 or higher, or the student will be dismissed.

No credit is granted for graduate courses in which a grade lower than a B- has been received. Grades lower than a B-, however, will appear on the student's transcript and will be computed into the student's GPA, although the student may not use the course for degree requirements.

Graduate students who do not meet other academic/program standards will be dismissed from their graduate program. This process entails a warning letter from the chair of the graduate program to the student. If the necessary academic standards are not attained within a period specified by the graduate program, the graduate program's chair recommends to the appropriate Dean that the student be dismissed from the program. Students will be notified of the intended action. Appeals of such action may be made in writing to the Vice Chancellor for Academic Affairs (VCAA) within ten business days.

Graduate Committees and Primary Academic Advisors

With the exception of certain professional programs, all graduate programs utilize a graduate committee system for advising and evaluating graduate students. At the Master's level, the committee is comprised of a minimum of three faculty members. One member will chair the committee and serve as the student's primary academic advisor. At least two members of a student's graduate committee must be full time tenured or tenure track faculty at UH Hilo.

For students in a non-thesis option, the graduate committee serves as an examination and evaluation body of the student's requirements as listed by the graduate program. For students utilizing a thesis option, the committee serves as the thesis committee. Acceptance or rejection of a student's work as fulfilling degree requirements is determined by a majority of the graduate committee.

Some professional programs may not utilize a graduate committee system. In these cases, a designated faculty member serves as the student's primary academic advisor. Acceptance or rejection of a student's work as fulfilling degree requirements is determined by a majority vote of the graduate program's faculty.

Minimum Residence Credits for Degree Certification

Regardless of any previous graduate experience, a minimum of 24 credit hours must be taken at UH Hilo before a degree can be granted. This is known as the "residence requirement," and applies to all graduate degree programs at UH Hilo. A maximum of six credit hours earned under courses designated as "thesis" may be counted toward the Graduate Division's minimum residence requirement. Students continuing their studies for a doctoral degree in the same UH Hilo program from which they earned their master's degree need not fulfill a second residence requirement.

Minimum Credits in Graduate Level Courses

Students are required to complete a minimum of 24 credits in courses at the 600 level or higher before a degree may be granted. Specific graduate programs may require additional credits at the 600 level or higher;

students are advised to read program requirements and discuss them with their primary graduate advisor.

Use of Undergraduate Courses for Graduate Credit

Graduate students may take up to six credits of course credit in 400-level classes toward their graduate degree requirements with the approval of the graduate program chair. Courses numbered 499 may not be used for graduate credit. Credits used to meet requirements for an undergraduate degree may not be used to meet graduate program requirements.

Dual Level Courses

Some courses are dually listed at the 400- and 600-level. Courses identified by graduate programs as core courses are not eligible as dual level offerings. For dual level courses, credit in the graduate course is not available to students who have received credit in the corresponding undergraduate course.

Dual level courses must be evaluated as a unit based upon their specific content, including specification of differences in expectations for undergraduate and graduate levels. Courses that have changing content from semester to semester, such as those ending in the numbers -94, -97, and -98, are not eligible for use in dual level offerings.

Overload Policy

Students may register for up to 15 credits with the approval of the graduate program chair. Any registration above 15 credits requires approval by both the graduate program chair and the Graduate Division. Students wishing to register for more than 15 credits must complete an Overload Petition. After obtaining the approval of the graduate program chair, the form must be submitted to the Graduate Division for approval. The Overload Petition must be approved before the end of the add deadline.

Incomplete Grades

An instructor may assign an Incomplete (I) when a student has done most of the course work satisfactorily, but because of unforeseen circumstances has not completed all course requirements. The Incomplete is not for the purpose of converting a failing grade, or unsatisfactory work, to a passing grade. The student must request the Incomplete option from the instructor, but it is the instructor's decision as to whether it is appropriate or not.

Graduate students who are given a grade of "I" must complete the coursework before the due date listed in the university calendar. "I" grades that are not completed by this due date automatically are converted into "NC" grades. The instructor may set a deadline sooner than that listed in the university calendar, reflecting the instructor's availability to extend his/her commitment beyond the course. The instructor, however, cannot extend the due date unless granted a specific waiver by the college Dean or, for interdisciplinary programs that involve more than one college, the Vice Chancellor for Academic Affairs.

Some departments and programs may have more restrictive policies regarding incomplete grades. Students should confer with their academic advisors concerning departmental rules and expectations.

The incomplete policy has specific implications for students receiving tuition scholarships and other kinds of financial aid and for international students holding visas. Graduate students who receive federal or state aid may lose their eligibility if they receive Incompletes. See the Financial Aid Satisfactory Academic Progress Policy.

All courses taken by graduate students are subject to the above policy. Incomplete grades must be resolved before students can receive a graduate degree.

Repeating Courses for Credit

A few graduate courses (numbered 600 and above) are repeatable for credit. Examples include thesis research and courses that are approved via the curriculum review process as "repeatable for credit" (e.g. Special Topics classes).

Retaking Courses for a New Grade

With the exception of courses that are explicitly repeatable for credit (see above), graduate courses cannot be retaken unless approved by

the program chair and graduate division prior to registration. With the permission of the graduate program chair, courses may be retaken, but not for additional credits. No more than two courses may be retaken, and no graduate level course may be retaken more than once during the student's graduate career. The grade received will be averaged with the previous grade in that course in computing the UH Hilo cumulative grade point average (GPA). For graduation purposes, however, a program grade point average may be computed which includes only the grades earned in the courses that are part of the student's graduate program. A statement which specifies the recomputed program GPA will be reflected on the student's academic records and transcript.

Continuous Registration

All students admitted to a degree-granting program must maintain continuous registration each semester for at least one credit hour. Students who do not register will be removed from the graduate program and will be required to reapply to the Graduate Division. Students do not need to maintain matriculation during the summer session unless final degree requirements are to be completed during this period. Students must be registered during the semester when the degree is granted.

Leave of Absence

Under exceptional situations, students may apply for a Leave of Absence. Students on leave are excused from the registration requirement during the period of the leave. Leaves are normally granted for six months with an extension of up to one year. A Leave of Absence is granted only in exceptional circumstances, such as illness or other unusual personal hardship, and requires detailed justification. Leaves of Absence are not granted to students who wish to absent themselves to undertake thesis or dissertation research elsewhere. If possible, requests for Leaves of Absence should be submitted one month prior to the semester for which the leave is requested. Students must complete a readmission application upon return.

Withdrawals

Students who withdraw from courses for which they are registered at the University must follow a formal withdrawal procedure if they wish their record to indicate good standing. Absence from class does not constitute due notice of withdrawal. No grades are recorded for students who formally withdraw by the listed withdrawal date that is noted in the Catalog. Withdrawal from all classes after the listed withdrawal date may be granted, but only in exceptional circumstances, such as illness or other unusual personal hardship, and requires detailed justification. Withdrawal from classes may affect financial aid eligibility. See the Financial Aid Satisfactory Academic Progress Policy in the UH Hilo Guide to Financial Aid (hilo.hawaii.edu/financialaid/). For international students, student visas require that students be registered as full time, so withdrawal from courses may result in a failure to meet visa requirements.

Transfer of Graduate Credits

Students matriculated in advanced degree programs must petition to have previously earned graduate credits from other institutions transferred toward their University of Hawai'i at Hilo graduate degrees within their first semester at UH Hilo. Using the Graduate Division's "Application For Transfer Credit" form, students submit this petition to their graduate program. A copy of the official transcript from the other institution must be on file with the Graduate Division.

Credits petitioned for transfer must be relevant to the student's UH Hilo degree program, must have been earned at a regionally accredited university, must not have been used to satisfy the requirements of another degree, and must have been earned in graduate-level courses for which the student earned at least a B. In cases where a graduate student wishes to take graduate coursework elsewhere for transfer credit during their tenure at UH Hilo, the course work must be pre-approved by the student's primary academic advisor and graduate program chair. Petition for transfer of these credits must be completed within a semester of completion of the course work, and will otherwise be subject to the same regulations as credits petitioned for transfer from before the student's acceptance to UH Hilo.

Credits earned through correspondence courses or through courses or experiences offered under the auspices of proprietary schools, business or industrial training programs, or schools conducted by federal agencies such as the Department of Defense normally are not considered for transfer.

Courses taken more than five years prior to matriculation in the Graduate Division are accepted only when the graduate program chair attaches a statement justifying the transfer.

The graduate chair in the student's program forwards all approved petitions to the Vice Chancellor for Academic Affairs or designee for final approval. Approved transfer credits will be included on the student's official Graduate School transcript as a single entry of total credits accepted in transfer. Letter grades from transfer credits are not considered in the determination of grade-point average.

Limitations on the number of credits acceptable in transfer are set in the first instance by the minimum residence requirement of 24 credit hours for any advanced degree; transfer credits cannot be applied toward the residence requirement. For example, for a master's program requiring a minimum of 30 credit hours, no more than six transfer credits may be applied toward the degree. When graduate programs require more than 30 credit hours, the VCAA or designee may accept a correspondingly larger number of transfer credits.

Policy Prohibiting the Awarding of a Second Degree in the Same Field

The UH Hilo policy is that a second degree at the same level (master's or doctoral) can be awarded only when a significant amount of additional coursework in a very different field is completed. Normally students who have already earned a master's or doctoral degree in a given discipline at either a foreign or U.S. institution may not earn a second degree in a similar field at the same level from UH Hilo.

Transcript Notations of Approved Concentrations Within a Major Program

For each advanced-degree recipient, approved concentrations, or specializations, may be listed on the official graduate transcript, along with the graduate major. Such listings are limited to two concentrations. In addition to the titles of approved and satisfactorily completed majors and concentrations, official graduate transcripts show the titles of doctoral dissertations and master's theses. All such special transcript listings are made only at the time of completion of final degree requirements.

Courses Taken in Other Graduate Programs at UH Hilo

Graduate students may take courses offered by other graduate programs at the university with the consent of the course's instructor. These other courses may count toward the student's degree program only with the authorization of the student's graduate program, and this authorization must be obtained before the student registers for the course.

Waiver of Regulations and Requirements

Some Graduate Division regulations and/or program requirements may be waived by the Vice Chancellor for Academic Affairs or designee in exceptional individual instances. A petition for waiver must be endorsed by the student's program graduate committee or graduate chair, who append their reasons for believing that the waiver request would not breach the spirit of the specified regulation or requirement.

Requirements for Candidates for Master's Degrees

Advising and Guidance From the Graduate Committee

At the beginning of a student's work toward the master's degree, the chair of the student's graduate program, in consultation with the student, designates a primary advisor. The primary advisor may be the chair of the graduate program or another faculty member. This advisor also may serve as chair of the student's graduate committee. The graduate committee, when required by the program, will consist of a minimum of three members who meet periodically with the student to discuss his or her progress.

Requirements for a Master's Degree

The Catalog stipulates the specific requirements for a master's degree in each program of the University. The minimum requirements include the following:

1. Students must maintain continuous registration, including the semester in which the degree is awarded.
2. Students must complete at least 24 credit hours of graduate coursework in residence. A minimum total of 30 credit hours of graduate coursework is required for all master's degrees. A maximum of six hours of transfer credit is allowed for programs requiring 30 credit hours; additional credit hours may be accepted for transfer in programs that require more than 30 credit hours, as long as the 24 credit minimum in residence is maintained.
3. Graduate students must maintain at least a B average in courses approved by the program or graduate committee and presented for the degree.
4. Students must fulfill all departmental or school course requirements. (No credit is granted for graduate courses in which a grade lower than a B- has been received).
5. Students must complete all other requirements as listed by the specific graduate program.
6. Students must complete all requirements, including thesis if required by the program, within five years after admission to the Graduate Division.

Examination

If a general examination is required for the student's master's degree, the examination may be written, oral, or a combination of both. The decision for pass or fail shall be by majority vote of the graduate committee in programs that utilize a graduate committee. In programs that do not use graduate committees, the program faculty by majority vote shall determine whether the student has passed or failed.

Thesis

Evaluation

If a thesis is required for the student's master's degree, the graduate committee, or the program faculty in programs that do not use graduate committees, will supervise and approve the thesis. Programs may designate additional examiners for the master's thesis beyond the student's graduate committee. Students must receive approval from the Institutional Review Board (IRB) for theses involving human subjects or from the Institutional Animal Care and Use Committee for theses involving use of vertebrate animals. Approval from these institutional committees, where appropriate, must be sought at the time of approval of the thesis topic, and research on the thesis may not commence until after IRB approval is granted. Where appropriate, permission from other entities, such as the Institutional Biosafety Committee, may be required.

Preparation and Typing

Master's theses should conform to Style and Policy Manual for Theses and Dissertations available at the following web site: manoa.hawaii.edu/grad/downloads/tdstylepolicy_e.pdf

Submission and Binding

The student should obtain "Requirements and Guidelines for Graduate Theses and Dissertations" from the UH Hilo Library for detailed instructions or refer to the library website: library.uhh.hawaii.edu/research_tools/theses.htm. Students submit a PDF copy of the thesis to the Library by the due date listed on the University calendar.

Annual Review Form

The primary academic advisor will submit an annual review form for each graduate student under her or his charge to the chair of the graduate program, using the form provided by their graduate program. This form will include data concerning number of credits earned; progress toward meeting other requirements such as papers, projects or theses; GPA; and other specific requirements for the graduate degree.

Awarding of the Degree

When a student has satisfied the requirements for a master's degree, the chair of the student's graduate program submits a "Recommendation for Award of Doctoral/Master's Degree" form to the Graduate Division by the required deadline. If submitting a thesis, this form should be submitted with the thesis when possible.

Deadlines

Degree completion dates will be posted on the university calendar. Those who have not completed all degree requirements by the established deadlines will be required to register the following semester.

Degree Conferral and Commencement

Degrees are conferred three times each year: December, May, and July. Students who complete degree requirements late in the summer or in the fall semester are awarded degrees in December. Students who complete degree requirements in the spring semester are awarded degrees in May. Students who complete degree requirements in early summer are awarded degrees in July.

To participate in the commencement ceremony, the student's graduate program must submit the "Recommendation for Award of Master's Degree" form to the Graduate Division by the required deadline. Commencement exercises are held only in December and May.

Completion Letter

Students who complete all requirements for the degree well in advance of the award of the degree may, upon request, receive a statement from the VCAA or designee certifying that all requirements for the degree have been completed.

Checklist for Completion of Degree Requirements

Master's Degree (non-thesis option)

- ✓ Graduate program: Appoints primary academic advisor and, where appropriate, graduate committee, in consultation with the student.
- ✓ Student maintains continuous enrollment in program
- ✓ Student: Completes coursework required for the degree.
- ✓ Student: Completes any other program requirements.
- ✓ Student: Registers for semester in which degree requirements will be completed.
- ✓ Student: Submits "Application for Graduation" form to the Business Office by the required deadline.
- ✓ Student: Passes final examination, and/or passes requirements for papers or projects as specified by the graduate program.
- ✓ Student: Completes all other requirements specified by the graduate program
- ✓ Graduate program: Submits "Recommendation for Award of Master's Degree" form to the Graduate Division by required deadline.

Master's Degree (thesis option)

- ✓ Graduate program: Assigns primary advisor and committee.
- ✓ Students maintains continuous enrollment in program
- ✓ Student: Completes coursework required for the degree.
- ✓ Student: Completes any other program requirements.
- ✓ Student: Passes general examination if required.
- ✓ Student: Registers for semester in which degree requirements will be completed.
- ✓ Student: Submits "Application for Graduation" form to the Business Office by the required deadline.

- ✓ Student: Completes thesis.
- ✓ Graduate program: Submits "Recommendation for Award of Master's Degree" form to the Graduate Division when student submits thesis by required deadline.
- ✓ Student: Submits original copy of thesis (with signatures) and an electronic version to the Graduate Division by required deadline. [pending specifics from the library]

Requirements for Candidates for Doctoral Degrees

Admission to Doctoral Work

For masters' degree candidates intending to continue into the doctoral program in the same graduate program, the student's graduate committee, at a designated time near the completion of the student's masters' work, decides whether or not to admit the student to the doctoral program. This will be indicated on a form submitted to the Graduate Division by the program. For entry into a UH Hilo doctoral program from a masters' program at another university, or from a masters' program in a different discipline at UH Hilo, students follow the regular graduate application and admission procedures.

Beginning the Program

At the beginning of the student's doctoral work, the chair of the graduate program appoints a faculty advisor or graduate committee (whose chair is the principal advisor). The initial advisor assists the student in planning coursework and in understanding the program structure and requirements; the advisor has primary responsibility for monitoring the progress of the student's work. The advisor may or may not become the student's graduate committee chair at a later stage in his or her studies. The initial advisor should meet with the student at least once each semester.

Requirements for a doctoral degree

The Graduate Catalog stipulates the specific requirements for the doctoral degree in each program. The requirements include:

1. Maintenance of at least a B average in courses approved by the program's graduate committee and presented for the degree.
2. Fulfillment of all program course requirements (no credit is granted for graduate courses in which a grade lower than B- has been received).
3. Completion of at least 24 credit hours in residence regardless of any previous graduate coursework elsewhere. Students continuing their studies for a doctoral degree in the same UH Hilo program from which they earned their masters' degree need not fulfill a second residence requirement.
4. Continuous registration including the semester in which final degree requirements are completed (this does not include summer terms).
5. Demonstration to the graduate committee by means of a comprehensive examination (written and/or oral) of familiarity with basic hypotheses and techniques of the discipline and competence in applying them.
6. Fulfillment of any research skills requirements.
7. Submission of a dissertation on a topic approved by the department or school, embodying the results of original research and giving evidence of high scholarship.
8. Successful defense of the dissertation at a final oral examination.
9. Completion of any other requirements specific to the graduate program.

Research Skills Requirements

Each graduate program establishes foreign language reading competency or equivalent research skills for its students. The graduate program determines the method(s) to be used to fulfill these requirements. Graduate students may register for research skills courses that have been established in each program.

Comprehensive Examination

A comprehensive or proficiency examination is used to test candidates' specialized knowledge in the discipline and to demonstrate that they are qualified to undertake advanced-level dissertation work. The comprehensive examination may be written and/or oral.

The student's graduate committee serves as the examination committee, and this body determines the outcome of the examination. The student may repeat all or part of the comprehensive examination only once without prior approval from the Vice Chancellor for Academic Affairs (VCAA) or designee. The student has five years to complete the doctorate after passing the comprehensive examination.

Dissertation Planning

After the student passes the comprehensive examination, the student's graduate committee will oversee the dissertation work. The committee will include an additional member chosen from a field outside the graduate program or from a similar field but from a different university, appointed by the VCAA or designee. Based on the student's recommendations, the committee is appointed by the chair of the student's graduate program. Two of the three regular members of the committee must be full time faculty at UH Hilo. Students must receive approval from the Institutional Review Board (IRB) for theses involving human subjects or from the Institutional Animal Care and Use Committee for dissertations involving use of vertebrate animals. IRB approval, where appropriate, must be sought at the time of approval of the dissertation topic, and research on the dissertation may not commence until after IRB approval is granted. Where appropriate, permission from other entities, such as the Institutional Biosafety Committee, may be required.

Committees are formed and modified (if necessary) by mutual agreement between the student and the faculty. The principal dissertation supervisor serves as chair of the graduate committee. Faculty are not required to serve on a particular dissertation committee if they do not wish to, and they are entitled to withdraw from a dissertation committee for reasonable cause. Faculty members from outside the student's own department or school may serve on the dissertation committee, but they do not replace the outside examiner, who is appointed by the VCAA before the final oral examination is scheduled.

Visiting, adjunct, and research faculty of UH Hilo (not holding the rank of Professor, Associate Professor, or Assistant Professor) may be appointed to a dissertation committee by the VCAA or designee upon recommendation of the program for a period not to exceed their term appointment at UH Hilo. If such term appointment is renewed, the member may continue to serve on the student's graduate committee.

Prospectus

The prospectus functions to identify the topic to be undertaken in the dissertation and to formalize the approval of the project by a faculty committee. The timing, format, length, and conventions governing the prospectus are set by each graduate program. If the student's program requires a prospectus, the student should submit it within six months after being admitted to candidacy; the prospectus must first be approved by the dissertation committee. In a conventional prospectus, a student is asked to identify a topic, to summarize relevant backgrounds, and to explain the approach. Some programs substitute for the prospectus another means of ensuring that the student's project has been identified clearly and has received written approval by each member of the committee.

Before approving the dissertation project, the chair of the graduate committee is encouraged to arrange a conference with the student and the other committee members for the purpose of discussing the research topic. Each program must inform doctoral students of its expectations, standards, and procedures regarding the prospectus or other approval of dissertation projects and must provide access to samples of accepted proposals or prospectuses. Graduate programs should include specific information about their expectations for a prospectus in advising manuals for graduate students.

Admission to Candidacy

After the student has passed the comprehensive examinations and met all research skills and coursework requirements, as certified by the program's submission of the "Recommendation for Admission to Candidacy for Doctoral Degree" form, he or she will be officially admitted to candidacy for the doctoral degree by the VCAA. Intra- and inter-program majors and minors should be declared at this time where applicable.

At least two semesters normally elapse between admission to candidacy and the granting of the degree. Doctoral candidates must complete all requirements for the degree, including the dissertation, within five years after admission to doctoral candidacy.

Declaration of Candidacy

In the semester that the student plans to complete the dissertation, he or she must submit a "Declaration of Candidacy for a Graduate Degree" form to the Graduate Division by the required deadline.

Preparation and Typing

Doctoral dissertations should conform to Style and Policy Manual for Theses and Dissertations available at: www.hawaii.edu/graduate/download/manuals/tdstylepolicy.pdf.

Submission and Binding

The student should obtain "Requirements and Guidelines for Graduate Theses and Dissertations" from the UH Hilo Library or refer to the library website: library.uhh.hawaii.edu/research_tools/theses.htm for detailed instructions. Students submit a PDF copy of the thesis to the Library by the due date listed on the University calendar.

Dissertation Defense

The graduate committee has direct charge of all matters pertaining to the dissertation. The student's dissertation must have the unanimous approval of his or her dissertation committee and of the chair of the graduate program before arrangements are made for the final examination for the degree. Members of the student's graduate committee serve as the examination committee. Students must receive approval from the Institutional Review Board (IRB) for dissertations involving human subjects or from the Institutional Animal Care and Use Committee for dissertations involving use of vertebrate animals. IRB approval, where appropriate, must be sought at the time of approval of the dissertation topic, and research on the dissertation may not commence until after IRB approval is granted. Where appropriate, permission from other entities, such as the Institutional Biosafety Committee, may be required.

Outside member

1. In consultation with his or her committee chair, the student will identify a UH faculty member from outside of the student's graduate program to serve as an outside voting member of the dissertation committee.
2. The outside member must possess sufficient familiarity with the student's research topic to be able to review and comment on the manuscript.
3. The committee chair must ascertain that the outside member is indeed independent of the faculty in the student's graduate program and that his or her membership on the committee will not constitute any conflict of interest.
4. The outside member fulfills the following functions:
 - Represents the University faculty on the committee, ensuring administration of proper procedures and fair treatment of the student;
 - Ensures that the level of research is indeed appropriate to the student's degree objective; and
 - Provides disciplinary expertise and an academic perspective that may not be possessed by the faculty of the student's graduate program.
5. The approval process for the outside member is as follows
 - The student and committee chair will forward the name of the proposed outside committee member to the Graduate Council.

- If the Graduate Council affirms the selection, the name will be sent forward to the VCAA for final approval.
- If the Graduate Council does not affirm the selection, the VCAA will determine how to resolve the disagreement; final selection will rest with the VCAA if the disagreement cannot be resolved between the candidate/committee chair and the Graduate Council.

Outside Examiner

The VCAA or designee, upon recommendation from the graduate program, adds an outside examiner to the examination committee as the representative of the faculty. The outside examiner is either a UH Hilo faculty member from a related area outside the student's graduate program or someone from a related discipline outside the University. Normally, the outside examiner will have no involvement in the supervision of the student's dissertation. The outside examiner's function on the examination committee is to render an independent judgment and to assure that the dissertation satisfies Graduate Division standards. An outside examiner is supposed to serve the Graduate Division and, therefore, must have substantial experience evaluating the scholarship/research of doctoral students (e.g., by being part of a graduate program, on graduate committees, supervising graduate research).

In special circumstances, particularly when a student would benefit from early counsel from a faculty member outside UH Hilo, the department chair or director of graduate studies can petition the VCAA or designee to appoint an outside examiner while the dissertation is still being written. If the nominee is from another institution, the program officer should forward the nominee's academic credentials, including a vita, to the VCAA or designee to be evaluated. The VCAA or designee then invites the nominee or another faculty member to serve as outside examiner.

Final Oral Exam (Dissertation Defense)

After the student's program has been notified of the appointment of an outside examiner, the program director, in conjunction with the chair of the examination committee, may proceed to schedule the final oral examination.

Because of the time required to give adequate consideration to the student's research, the student should submit the dissertation to the graduate committee well in advance of the final oral defense. Normally, two months is recommended; the student should consult the committee.

The final oral examination is open to any person wishing to attend. Members of the graduate committee must be given sufficient time to question the candidate about the dissertation. The final defense is a public examination, however, and the committee chair is responsible for the conduct of an open and impartial examination, including reasonable participation by observers. At the conclusion of the examination, it is customary for the chair to request that everyone except the graduate committee leave the room, so that the members may reach a decision. This procedure should not be invoked at any other time during the examination and should not preclude any questions from either committee members or outside observers.

No member of a graduate committee can be expected to participate in a dissertation defense if that member has not had at least two weeks to read and consider the dissertation beforehand.

At the final examination, the student will be required to respond to examiners' questions concerning the dissertation and to defend the validity of the dissertation. To pass, the student must receive unanimous approval from the total graduate committee present. All members of the graduate committee who accept the dissertation in partial fulfillment of requirements for the doctorate shall so attest by their signatures on the "Recommendation for Award of Doctoral Degree" form. If the outside examiner does not signify approval in this manner, he or she should give the reason for dissent by submitting a separate memorandum to the VCAA or designee within three days of the examination.

If at the final examination the examiners generally approve of the dissertation but require significant changes and are not yet prepared to sign the "Recommendation for Award of Doctoral Degree" form, the chair of the graduate committee will coordinate with other members of the committee to compile all required changes and will inform the student of the

scope and substance of those changes. The committee will establish how the changes will be reviewed and approved.

Following the oral exam and approval of the dissertation, the chair of the graduate program submits to the Graduate Division the signed "Recommendation for Award of Doctoral Degree" form, indicating that the student has now fulfilled all academic requirements for the doctoral degree and has successfully defended the dissertation. Members of the dissertation committee sign the signature page in the original copy of the dissertation; the outside examiner does not sign the signature page.

Remote Participation

Normally, all members of the graduate committee and the outside examiner are present at the defense. At the discretion of the program, with the unanimous consent of all members of the graduate committee and the student, committee members or the outside examiner may participate in the defense via real-time teleconferencing or real-time videoconferencing. In all cases, the chair and at least one other member of the dissertation committee must be physically present.

If in exceptional circumstances one member of the graduate committee cannot be present (either physically or virtually), they may submit questions and comments in writing. Such arrangements must be approved in advance by the program and must have the unanimous consent of all other members of the graduate committee and the student.

Filing the Accepted Dissertation

Submission

By the deadline published for each semester, the student is required to submit the dissertation to the Library along with payment of the appropriate fees. Details on these requirements may be found at the Library.

The dissertation should include the acceptance (signature) page with original signatures indicating approval by the dissertation committee (see sample).

Abstract (Mandatory)

The acceptable length for an abstract to be published in Dissertation Abstracts International (DAI) is 350 words. An abstract within the dissertation need not be limited. The student may prepare a lengthy abstract for inclusion in the dissertation and a more concise summary for publication in DAI. The abstract is expected to give a succinct account of the student's dissertation so that a reader can quickly learn the essential contents and results. A typical abstract includes a statement of the problem, an account of procedure or methods followed, and an account of main results and conclusions.

Abstracts must be prepared carefully, since they are published in DAI without editing or revision. Abstract copy must be typed on one side of the paper and should be double-spaced. Symbols and foreign words and phrases must be printed clearly and accurately.

To remain within the 350-word limit, the following method for counting is recommended:

There is a maximum of 2,450 typewritten characters per abstract. Count the number of characters, including spaces and punctuation, in a line of average length and multiply by the number of lines. An average abstract will have about 70 characters per line with a maximum of 35 lines.

The original abstract is deposited with University Microfilms International, Ann Arbor, Michigan, and is listed and indexed in Dissertation Abstracts International. This constitutes publication. However, publication in University Microfilms does not copyright material.

Agreement Form

At the time the student submits the dissertation to the Library, he or she will be asked to complete the required University Microfilms Agreement Form. Students are encouraged to contact the Library for these forms prior to submitting their dissertation. Those students who will be mailing their dissertations should request that this form be mailed to them.

Copyright

To protect the right of authorship by copyright, it is only necessary under current law to affix a notice of copyright to the page following the title page. The copyright notice should give the full legal name of the author, as follows:

© Copyright by Suzette M. Doe 2000
All Rights Reserved

Unless a dissertation is copyrighted in this way, it becomes part of the public domain as soon as a copy of it is placed on the library shelves.

The Graduate Division also urges students to register their dissertations with the federal copyright office. The advantage of taking this step could be considerable. In the case of plagiarism, for example, the author may bring an action against the guilty party and recover damages. In the case of scholarly work, proving and recovering damages may be difficult, if not impossible. But if the work bears a notice of copyright and has also been registered with the copyright office, statutory damages may be awarded, and may include attorney's fees incurred in prosecuting the suit. Registration of the dissertation with the copyright office entails signing the appropriate section of the University Microfilms Agreement Form and payment of a \$45 fee. However, even without registering the dissertation with the copyright office, the copyright notice on the page following the title page is sufficient to effect a copyright for the author.

Survey of Earned Doctorates

When the student submits the dissertation to the Graduate School, he or she will be asked to complete a "Survey of Earned Doctorates" form, which will be forwarded to the National Opinion Research Center in Chicago, Illinois. Students are encouraged to contact the Graduate Division for this form prior to submitting their dissertation.

Deadlines

Degree completion deadlines are noted in the University Calendar.

Degree Conferral and Commencement

As noted under Master's degree requirements.

Completion Letter

Students who complete all degree requirements well in advance of the awarding of the degree may, upon request, receive a statement from the VCAA or designee certifying that all requirements for the degree have been completed.

Checklist for Completion of Degree Requirements of Doctoral Degree

- ✓ **Graduate program:** Assigns principal advisor and graduate committee.
- ✓ **Student:** Satisfies residence and course requirements.
- ✓ **Student:** Passes research skills examinations (if required).
- ✓ **Graduate program:** Arranges comprehensive examination.
- ✓ **Student:** Takes comprehensive examination.
- ✓ **Student:** Writes a prospectus.
- ✓ **Graduate program:** Submits "Recommendation for Admission to Candidacy for Doctoral Degree" form to the Graduate Division.
- ✓ **Student:** Maintains appropriate registration for dissertation credit each semester, including semester in which all degree requirements will be completed.
- ✓ **Student:** Submits "Declaration of Candidacy for a Graduate Degree" form to the Graduate Division by the required deadline.
- ✓ **Student:** Completes dissertation.
- ✓ **Graduate program:** Nominates outside examiner by memo to the VCAA or designee.
- ✓ **VCAA or designee:** Appoints outside examiner and so notifies the graduate program.
- ✓ **Student:** Passes final oral examination.
- ✓ **Graduate program:** Submits "Recommendation for Award of Doctoral Degree" form to the Graduate Division.
- ✓ **Student:** Submits dissertation (with fees) to the Library, and completes the "UMI Microfilming Agreement Form" and the "Survey of Earned Doctorates." [details provided by Library]

Graduate Student Rights and Responsibilities

Policy on Academic Dishonesty

Graduate students are subject to the policies and procedures governing student conduct as described in the UH Hilo Student Conduct Code. This includes acts of academic dishonesty, including, but not limited to, plagiarism, cheating, and falsifying data. Students can find these policies in the "Academic Dishonesty" section of this Catalog.

Policy on Conduct Violations Other than Academic Dishonesty

Instances in which graduate students are alleged to have violated the UH Hilo Student Conduct Code in areas other than academic dishonesty will be handled following the procedures described in the Student Conduct Code. These procedures are described in the "Student Conduct Code" section of this catalog.

Conduct and Removal of Financial Support

All other recommendations to dismiss a student from the Graduate Division or one of its programs, or to break a student's assistantship contract or to revoke a fellowship, tuition scholarship, or other source of financial support, are made to the VCAA, accompanied by appropriate documentation. The student will be informed of the basis for any such decision. The student may appeal the decision by using first the grievance procedure of the student's program and then, if needed, the appeals procedures of the Graduate Council Grievance Committee. Action on a recommendation to remove support from or to dismiss a student in good academic standing will await the outcome of the grievance procedure.

Academic Complaints

The process for handling academic complaints by graduate students will follow the same general procedure as utilized for undergraduate students at UH Hilo. This procedure is outlined in the University of Hawaii at Hilo Student Academic Complaint Policy found at hilo.hawaii.edu/uhh/accreditation/StudentRights.php. The following exception is made for graduate students:

Under Part III (Procedures for the Resolution of Academic Complaints Filed During the Regular Academic Year) Letter B (Complaint of Academic Impropriety), for complaints relating to academic impropriety involving post-baccalaureate students, the Dean shall refer the written complaint to the UH Hilo Graduate Council (Academic Complaints Committee) for timely review and recommendation (10 calendar days) before taking action.

M.A. in China-U.S. Relations

The MA in China-US Relations program is not accepting new students at this time. Current students should contact Dr. Kenith Simmons, simmons@hawaii.edu, 974-7707; and are assured that they can complete the program requirements in place when they entered the program.

M.A. in Counseling Psychology

Program Director: Bryan Kim, Ph.D. (bryankim@hawaii.edu)
 Department of Psychology
 University of Hawai'i at Hilo
 200 West Kāwili Street Hilo, HI 96720
 Tel: (808) 974-7439
 Webpage: <http://counseling.uhh.hawaii.edu/>

Admission Requirements

To be eligible for admission to the Master of Arts in Counseling Psychology program, students must meet the following minimum requirements:

- A baccalaureate degree from a regionally-accredited institution;
- A cumulative GPA of 3.0 on a 4.0 scale;
- A strong background in psychology or a closely-related field, with a minimum of 15 semester hours of course work in psychology; strongly recommended are an introductory or survey of psychology, statistical techniques, research methods, and at least two 300-level or higher psychology courses. For these 15 semester hours, similar courses in closely-related fields of study may also be acceptable;
- At least one 3-semester-credit course in statistics and one 3-semester-credit course in research methods from any discipline;
- A score of 550 on the TOEFL (required of applicants for whom English is not their native language and whose undergraduate degree was earned in a non-English speaking country).

Meeting the minimum requirements does not guarantee admission. Eligible applications are reviewed by the Psychology Graduate Admissions Committee, which uses multiple criteria for the assessment of applicants. Admission is selective. Priority may be given to students applying for full-time enrollment. Depending on program needs, a few outstanding applicants for part-time enrollment may be admitted.

Application Procedure

The application priority deadline for Fall admission is February 1. Applications received in the UH Hilo Graduate Office of Admissions after the deadline will be considered only on a space available basis by the program. Students who submit applications after the February 1 deadline may not be eligible for certain types of financial aid.

Complete applications that meet the minimum admission requirements will be forwarded to the Psychology Department's Graduate Admissions Committee which will review each application. Admission decisions will be made by this committee and forwarded to the UH Hilo Graduate Office of Admissions.

The UH Hilo Graduate Office of Admissions receives applications and supporting documents and maintains the applications through final notification. In general, for applications received by the priority deadline, Admissions will notify each applicant of acceptance or rejection by March 15.

Applicants must submit all of the following items:

- UH Hilo Graduate application form;
- Application fee;
- Official transcripts from all colleges or universities attended (must be received directly from the institution or in a sealed envelope if submitted with your application);
- Personal statement (see the program website);
- Resume;
- Three professional recommendation letters, which may use the

special recommendation forms (not required, however) included with the application materials. The recommendations should be sent directly to the UH Hilo Graduate Office of Admissions by the referees;

- GRE general test scores (sent to UH Hilo directly by the testing service).
- In addition, international applicants must submit the following items:
- Supplementary Information Form for Foreign Students (hilo.hawaii.edu/forms/);
- TOEFL scores (if English is not the applicant's native language);
- Official college transcripts in the original language accompanied by official translations into English.

Applications will be considered only when all of the above documents have been received. For more detailed information and to download application forms, students may use the program website. Application forms also may be obtained from the UH Hilo Graduate Office of Admissions:

UH Hilo Graduate Office of Admissions Student Services Building 200 West Kawili Street Hilo, HI 96720-4091 Tel: (808) 974-7414 or (808) 897-4456 Fax: (808) 933-0861

uhhadm@hawaii.edu hilo.hawaii.edu/studentaffairs/admissions/

Transfer of Credits

Requests for transfer of credits must be made during the first semester in which the student is enrolled in the program. Students need to obtain departmental approval for all credit transfers. Only credit hours with a grade of B or better from accredited universities are transferable. Credit hours for practicum and internship courses are not transferable. Transfer credit hours must have been completed within five years prior to admission. Students may transfer a maximum of 12 semester hours (or the equivalent). On rare circumstances, requests for an exception to the 12-credit limit could be considered by the program faculty. All requests for transfer of credits must be accompanied by a transcript and course syllabi.

Program Curriculum

Total semester hours required: 60

Required courses (51 semester hours):

- PSY 601 (4) Applied Multivariate Statistics
- PSY 602 (3) Research Methodology and Program Evaluation
- PSY 603 (4) Psychological Assessment
- PSY 604 (3) Professional Identity, Ethics, and Legal Issues
- PSY 611 (3) Lifespan Human Development
- PSY 612 (3) Career Development
- PSY 613 (3) Psychopathology over the Lifespan
- PSY 620 (3) Counseling Theories
- PSY 622 (4) Group Work and Counseling
- PSY 623 (3) Social and Cultural Foundations
- PSY 624 (3) Counseling Skills
- PSY 640 (6) Counseling Practicum
- PSY 659 (9) Internship

Electives (9 semester hours required):

PSY 614 (3) Family System
 PSY 641 (3) School Behavior, Adjustment, and Problems
 PSY 642 (3) Educational and Vocational Assessment
 PSY 643 (3) School and Career Guidance and Consultation
 PSY 651 (3) Theories of Family Counseling
 PSY 652 (3) Couple Counseling

PSY 656 (3) Child Maltreatment
 PSY 694 (3) Advanced Topics
 PSY 699 (3) Directed Studies
 PSY 700 (1-6) Thesis Research (repeatable)

Master of Education (M.Ed.)

Program Chair: Jan Zulich, Ph.D.
 Office: University Classroom Building 322, (808) 974-7585
 Website: hilo.hawaii.edu/academics/education/

Admission Requirements

Admission is based upon previous preparation and requires completion of a baccalaureate degree and evidence of eligibility for the initial basic license to teach as defined by the UH Hilo Education Department. Generally, an applicant must have earned a minimum grade point average of 3.0 (4.0=A scale) or the equivalent in the last four semesters or approximately 60 semester credits of his/her undergraduate record and in all post-baccalaureate work. Applications and a detailed description of requirements are available from the Education Department or from the UH Hilo Graduate Office of Admissions. Interested potential students may contact the Education Department at 808-974-7582 for more information.

Following are the major requirements for admission:

1. Baccalaureate degree from an accredited institution;
2. A cumulative grade point average (GPA) of 3.0 (4.0 = A scale) or the equivalent in the last four semesters or approximately 60 semester credits of the undergraduate record and in all post-baccalaureate work;
3. Evidence of eligibility for an Initial Hawai'i Basic License to teach;*
4. Three letters of recommendation from references who have observed or supervised the applicant's performance and are able to comment on the quality of the applicant's teaching experience, ability to pursue graduate study, and general character.

* Applicants who do not hold a license to teach should meet with an Education Department Advisor (808-974-7582 for appointment) prior to submitting documentation for admission to the M.Ed. Program. Applicants must submit evidence of their eligibility by documenting the following:

1. Development of knowledge, skills, and dispositions described in the Hawai'i Teacher Standards Board's Teacher Performance Standards;
2. Experience teaching;
3. Ability to participate in the study of education at the level required in a graduate program.

The UH Hilo Education Department M.Ed. Admissions Committee will evaluate above evidence submitted as one of the components in the M.Ed. application.

Application packets will be reviewed only when they are complete. International applicants also must provide verification of financial status. An official TOEFL score report may be required for international applicants.

The UH Hilo M.Ed. Program does not lead to licensure in the State of Hawai'i.

Course and Graduation Requirements

M. Ed. Course Requirements

ED 600 (3) Education of Ethnic Groups in Hawai'i
 ED 602 (3) Technology in Education
 ED 608A, B, C (3) Fundamentals of Educational Research
 ED 610 (3) Foundations of Education
 ED 612 (3) Literature Reviews in Education
 ED 616A, B, C (3) Assessment and Evaluation in Education
 ED 620 (3) Individual Differences: Learner Characteristics
 ED 622 (3) School Curriculum
 ED 625 (3) Seminar in Teaching Field
 600+ (3) Elective

M. Ed. Graduation Requirements

- Students must complete all program courses, including the elective course.
- To remain eligible for continuance in the M.Ed. and to be awarded the graduate degree, students must maintain progress toward completion of the program and must have a B average (3.0 GPA) for all courses completed in the program.
- Each student must complete a culminating experience; this is an independent project that integrates what he or she has learned during the five semesters of the program. The project must be completed independently of any course and will not be associated with program course credit.

Cohort and Other Requirements

- Students enroll in the M.Ed. program as members of a cohort which is expected to complete all requirements in four semesters and two summers.
- Courses are offered during the evening and/or on Saturdays.
- Typically, all students in a cohort will take courses together and in the sequence prescribed by the department.
- New cohorts will be established based on student demand and available resources.
- Students must remain continuously enrolled while in the M.Ed. program.

Faculty Advising and Guidance

Each student will be assigned a faculty advisor who will meet with the individual student to review, approve, and provide guidance for the culminating project.

Kahuawaiola Indigenous Teacher Education Program

Coordinator: Keiki Kawai'ae'a, keiki@leoki.uhh.hawaii.edu, 974-7794

Admission Requirements

Applicants will be evaluated on the following criteria:

- Completion of the application packet.
- B.A. or B.S. degree from an accredited college or university, in a major approved by the Hawaiian Studies Division requiring a minimum of 120 credits, 45 of which are at the 300 level or above.
- A minimum GPA of 2.75 in both the major and cumulative record.
- Four years of Hawaiian language with a minimum GPA of 2.75 for the third and fourth years, or permission from the Hawaiian Studies Division based on an evaluation of fluency.
- Successful completion of one of the following: HWST 111, 211, 213; or permission from the Hawaiian Studies Division based on an evaluation of Hawaiian cultural knowledge and skills.
- Successful completion of one of the following: HWST 205, 471, 472, 473, 474; or permission from the Hawaiian Studies Division based on an evaluation of Hawaiian cultural knowledge and skills.
- Successful completion of Haw 490 Base-Level Fluency for Hawaiian Medium Education.
- 50 hours of (paid or volunteer) teaching experience through the medium of Hawaiian, OR 30 hours of (paid or volunteer) teaching experience through the medium of Hawaiian AND 30 hours of (paid or volunteer) experience in Hawaiian medium curriculum development.
- Passing scores on the Praxis I exams (reading, writing, and mathematics), AND on Praxis II (Subject Assessments) Content Area Exercises relevant to secondary level licenses which the applicant will seek from the Hawai'i Teacher Standards Board.
- Interview with Kahuawaiola faculty.

Applying to the Program

Applications will be evaluated on submission of the following required documentation in a timely manner.* (Application deadline is December 1st)

1. University of Hawai'i Application for Admission (including processing fee)
2. Kahuawaiola Admission Application
3. Statement of interest
4. Work Experience Verification form
5. Three letters of recommendation
6. Official college/university transcripts (for EACH post-high institution previously attended)
7. Official Praxis I/II scores

*Applicants accepted into the program will be required to complete additional documentation prior to the start of the summer session, includ-

ing but not limited to a criminal background check and fingerprinting as required by the state prior to classroom teaching. For more information, contact the Kahuawaiola office.

Graduation Requirements

Graduation from the program is based on the successful completion of the following requirements:

9 courses totaling 37 credits:

- KEd 620 (3) Foundations for Hawaiian Medium Education
- KEd 621 (3) Language Arts in Hawaiian Medium Education
- KEd 622 (2) Math and Science in Hawaiian Medium Education
- KEd 623 (2) Social Studies in Hawaiian Medium Education
- KEd 624 (3) Technology, Arts, and Physical Education in Hawaiian Medium Education
- KEd 641 (9) Hawaiian Medium Field Experience I
- KEd 642 (3) Hawaiian Medium Field Experience I Seminar
- KEd 643 (9) Hawaiian Medium Field Experience II
- KEd 644 (3) Hawaiian Medium Field Experience II Seminar

Minimum grade of 3.0 in all teacher training courses requiring grades.

Candidates complete "requirements" on two levels:

Level One - "Certificate Completer" - Upon completion of all Kahuawaiola course requirements, candidates graduate and receive the Graduate Certificate in Indigenous Education from UH Hilo. (Application for Graduation required.)

Level Two - "Program Completer" - In addition to completing the certificate, candidates ALSO complete remaining Praxis exams (PLT and Praxis II Subject Assessment Pedagogy exams/Elementary Education exams) required for licenses which they will seek from the Hawai'i Teacher Standards Board (HTSB). Only after successful completion of Praxis exams are candidates recommended by Kahuawaiola to the HTSB for licensure. Only "Program Completers" are eligible to apply for teaching licenses from the HTSB.

Academic Status, Progression, and Readmission Policies

Kahuawaiola students are expected to maintain full-time status in three consecutive semesters in order to complete the course work, field experiences, and other requirements of the program. There are no elective courses.

Unless so designated, Kahuawaiola courses may not be taken on a "credit/no credit" basis. A 3.0 GPA must be maintained in all courses. A student whose GPA falls below 3.0 may be dismissed from the program. Likewise, a student may be removed from a field experience if it is determined by Kahuawaiola faculty that the student is not making satisfactory progress toward meeting the requirements of the program. Such removal may result in complete dismissal from the program.

Master of Arts (M.A.) in Indigenous Language and Culture Education

Coordinator: Makalapua Alencastre,
E-Mail: makalapua@leoki.uhh.hawaii.edu

Tel: (808) 974-7589

For information contact: Ku'ulei Kapa'a

Ka Haka 'Ula O Ke'elikolani College, University of Hawai'i at Hilo
200 West Kāwili Street, Hilo, Hawai'i 96720-4091

Tel: (808) 974-7796 Fax: (808) 974-7797

E-mail: ma_naauao@leoki.uhh.hawaii.edu

Web: www.olelo.hawaii.edu/khuok/ma_naauao.php

Admission Requirements for the Practicing Track (Plan B, non-thesis)

- Bachelor's degree from an accredited college or university with a minimum 3.0 grade point average in an approved field of study, e.g., Indigenous Studies, Ethnic Studies, Education, Languages (including English), etc.;
- Three letters of recommendation at least one of which must focus on the applicant's background in the Hawaiian language and culture and service to the Hawaiian community;
- 30 credits of study in Hawaiian language or a program approved combination of Hawaiian language and a metropolitan language,

- Anthropology or Linguistics with no grade lower than a "B" and a 3.5 average;
- 9 credits of study in the Hawaiian culture or a program approved combination of Hawaiian culture and related social science courses such as Anthropology and Sociology with no grade lower than a "B" and a 3.5 average;
- Teaching experience either paid or volunteer;
- Complete taped interview either in person or by telephone;
- Graduate Record Exam (GRE) scores;
- In the case of second language speakers of English, passing scores on the TOFEL as determined by the College or other evidence of English fluency.
- Prior completion of the Kahuawaiola Indigenous Teacher Education Program or current enrollment in that program. (Note that enrollment in the Kahuawaiola program requires that the student has previously passed HAW 490 Base-level Fluency for Hawaiian Medium Education.)

Further information on the details of fulfilling admission requirements are available from the program. The College may, under some circumstances, provisionally accept students to the program.

Graduation Requirements

Practicing Indigenous Education Track (Non-thesis) (31 credits)

- 3 credits in KEd 630 Research Methods in Indigenous Language and Culture Education
- 10 credits in group specific indigenous language medium education
 - KEd 620 Foundations for Hawaiian Medium Education (3)
 - KEd 622 Math and Science in Hawaiian Medium Education (2)
 - KEd 623 Social Studies in Hawaiian Medium Education (2)
 - KEd 624 Technology, Arts, and Physical Education in Hawaiian Medium Education (3)
- 3 credits in KEd 621 Language Arts in Hawaiian Medium Education
- 6 credits in field study
 - KEd 642 Hawaiian Medium Field Experience I Seminar (3)
 - KEd 644 Hawaiian Medium Field Experience II Seminar (3)
- 6 credits in appropriate 600 level education, multilingual societies or linguistics electives taken from any two of the following:
 - HAW 632 Teaching Hawaiian as a Second Language
 - KEd 660 Indigenous Culture-Based Education in Theory and Practice
 - KEd 661 Curriculum Development in Maui Ola-based Schools
 - KEd 662 Cultivating Native Well-being Through Education
- 3 credits in KEd 693 Applied Research In Indigenous Education
- Completion of the Kahuawaiola Indigenous Teacher Education Program
 - KEd 641 Hawaiian Medium Field Experience I
 - KEd 643 Hawaiian Medium Field Experience II

Master of Arts (M.A.) in Hawaiian Language and Literature

Coordinator: Kalena Silva, kalena_s@leoki.uhh.hawaii.edu

Kanaka'ole Hall 269

University of Hawai'i at Hilo, 200 W. Kāwili Street, Hilo, Hawai'i 96720

Tel: (808) 974-7342

Admission Requirements

- B.A. or B.S. degree from an accredited college or university;
- 30 upper division credits in HAW or HWST courses with no grade lower than a "B" and a minimum 3.5 grade point average;
- Graduate Record Examination scores;
- Sample undergraduate or graduate academic paper (by preference written in Hawaiian);
- Three letters of recommendation;
- Interview and successful completion of an examination in Hawaiian language and culture by the Hawaiian Studies faculty, held in the Spring semester prior to Fall admission;

Graduation Requirements

Complete all eight of the following requirements for a total of 36 semester hours:

- Earn 12 semester hours from the following 4 courses: HAW 630, 631, 692; and HWST 663.
- Earn 3 semester hours from HWST 473, 661 or 662.

- Earn 3 semester hours from HWST 664, 665, 671, or KANT 486.
- Earn 3 semester hours from HAW 453, 454, or 654.
- A minimum of 24 credits must be earned in 600- or 700-level courses, excluding HAW 693 and HAW 700 thesis research. Only six credits in 400-level classes may be counted toward the total of 36 semester hours.
- Earn 3 semester hours from either HAW 690 or HWST 690 (course must be approved by program chair). Students typically study for at least six weeks with another endangered language community outside Hawai'i.
- Earn 6 additional semester hours in upper division and graduate Hawaiian Language or Hawaiian Studies courses from the following list, with not more than 6 hours at the 400 level:
 - HAW or HWST 400-498, 600-699V (except HAW 490)
 - KED 600-699V (except KEd 641-644)
 - KANT 486
 - KIND 601-602
- Earn 6 semester hours in HAW 693 and/or 700.
- Earn no grade lower than a "B."

Under certain circumstances a student may request a transfer from the Masters in Hawaiian Language and Literature to the Ph.D. in Hawaiian and Indigenous Language and Culture Revitalization after completing a minimum of 18 credits of graduate work determined appropriate by the program faculty.

Doctor of Philosophy (Ph.D.) in Hawaiian and Indigenous Language Culture Revitalization

Coordinator and contact person:

William H. Wilson, pila_w@leoki.uhh.hawaii.edu

234 Kanaka'ole Hall

University of Hawai'i at Hilo

200 W. Kāwili Street, Hilo, Hawai'i 96720

Tel: (808) 974-7454

Admission Requirements

1. Master's degree from an accredited college or university with a minimum 3.0 grade point average in an approved field of study (e.g., Hawaiian Language and Literature, Indigenous Studies, Anthropology, Languages, etc).
2. Proficiency in and academic knowledge of the applicant's indigenous language of focus, as demonstrated by a taped speech and written essay, with English translation. (The level of proficiency and academic knowledge required will depend on the status of the indigenous language, in terms of how endangered it is and how much linguistic description has been done.)
3. A letter requesting admission to the program which describes the applicant's :
 - academic objectives and research interests;
 - experience in educational service to his or her indigenous language of focus;
 - diversity experience with the contemporary status of an indigenous or threatened language and culture besides the student's own indigenous language of focus. The social and political environment of this additional language should be different from that of the student's language of focus.
 - future plans regarding work to revitalize his or her indigenous language and culture.
4. A sample of written work (usually the master's thesis).
5. Course work of at least 6 credits in general linguistics, linguistic analysis, and sociolinguistics
6. Complete taped interview either in person or by telephone.
7. Three letters of recommendation, at least one of which must focus on the applicant's background in the language and culture of an indigenous people and service to that indigenous community.
8. For second language speakers of English, passing scores on the TOFEL or other evidence of English fluency.

Further information on the details of fulfilling admissions requirements are available from the Director of Ka Haka 'Ula O Ke'elikōlani College of Hawaiian Language.

Graduation Requirements

1. KIND 730 (3) Research Methods In Hawaiian And Indigenous Language And Culture Revitalization
2. **Eight Credits** in Advanced Study of Language of Focus:
 - KLAN 701 (1) Semantics And Pragmatics In Indigenous Languages
 - KLAN 702 (1) Stylistics And Domains In Indigenous Languages
 - KLAN 703 (3) Semantics And Pragmatics Of An Indigenous Language
 - KLAN 704 (3) Stylistics And Domains Of An Indigenous Language

These credits are directed toward improved analytical and fluency skills in the student's language of focus and its culture. KLAN 701/702 are seminars taken by all students to develop common understandings and form the basis for KLAN 703/704, which focus specifically on Hawaiian or other indigenous languages depending

on student interests.

3. Additional Language Requirement:

For students whose language of focus is Hawaiian, the additional language requirement will be met by demonstrated fluency and academic knowledge of any approved second language equivalent to the 102 level as taught at UH Hilo.

For students whose language of focus is other than Hawaiian, the additional language requirement will be met by demonstrated fluency and academic knowledge of Hawaiian equivalent to the 102 level as taught at UH Hilo.

4. **Two Areas of Specialization:**

Students will focus on **TWO** of the four areas of specialization provided in the program:

- (a) Indigenous Language and Culture Education,
- (b) Indigenous Language and Culture In Society,
- (c) Language Planning, and
- (d) Hawaiian Language and Culture.

Specific research themes to be addressed within these broad areas are diverse in order to allow maximum application to student dissertation interests. Examples of such areas are literacy in indigenous languages, indigenous language media, spirituality and religion in traditional Hawaiian thought, lexicon development, indigenous language testing and evaluation, colonialism and neocolonialism as factors in indigenous language and culture revitalization, technology in indigenous language revitalization, diversity in indigenous languages and societies, ecological planning for indigenous language and culture survival, etc.

The amount of course work in the two areas of specialization is dependent on the student's graduate committee, who will determine when the student is sufficiently prepared to take comprehensive examinations in the two areas. *At a minimum the student must complete **two** of the following courses (together with the prerequisites) listed below:*

KED 794 (3) Indigenous Language and Culture Education (pre: KED 660, 662 or equivalent)

KIND 794 (3) Indigenous Language and Culture In Society (pre: KIND 601, 602 or equivalent)

KLIN 794 (3) Language Planning (pre: KIND 601, 602 or equivalent)

HWST 794 (3) Hawaiian Language and Culture (pre: HAW 631, 654, HWST 663, 665 or consent of instructor)

5. Completion of all graduate courses with a grade no lower than "B."
6. Successful completion of a comprehensive examination consisting of oral and/or written questions, after the student's Graduate Committee determines the student has had sufficient preparation in the field of study to begin work on the dissertation.
7. Submission and approval of a portfolio which documents the student's work to improve public opinion and/or government policy concerning the revitalization of the student's language and culture of focus. The portfolio may include newspaper or periodical articles or oral presentations aimed at the student's indigenous community or the larger public; it may include written material or oral testimony given at government forums concerned with indigenous language and culture revitalization.
8. Successful completion of a dissertation, with enrollment in a minimum of six credits of Kind 800 (V) during the writing of the dissertation. A final oral examination in defense of the dissertation is then required upon completion of the dissertation.

Doctor of Nursing Practice (D.N.P.)

School of Nursing Director: Katharyn Daub, Ed.D., RN, CTN, CNE,
(katharyn@hawaii.edu)

School of Nursing Office: University Classroom Building 243
(808) 974-7760, Fax: (808) 974-7665

Website: hilo.hawaii.edu/depts/nursing/

The D.N.P. program has been approved by the University of Hawaii Board of Regents and by the Western Association of Schools and Colleges. The program will begin August 2012 for post-baccalaureate students and will be open to post-master's students in August 2013. Contact the Director of the School of Nursing for information on the program, including admissions requirements and curriculum.

College of Pharmacy: Doctor of Pharmacy (PharmD.)

Dean: John M. Pezzuto, Ph.D. University of Hawai'i at Hilo
34 Rainbow Drive Hilo, HI 96720 Email: pharmacy@hawaii.edu
Tel: (808) 933-2909

Web: <http://pharmacy.uhh.hawaii.edu/>

Chair, Department of Pharmaceutical Sciences: Andre Bachman, Ph.D.

Chair, Department of Pharmacy Practice: Ronald Taniguchi, Pharm.D.

Admission Requirements

To be eligible for admissions into the University of Hawai'i at Hilo College of Pharmacy, students must meet the following requirements:

Completion of the prerequisite courses including:

Pre-Requisite Category	Credits
Biology I and II with Labs	8
Microbiology with Lab	4
General Chemistry with Labs	8
Organic Chemistry with Labs	8
Human Anatomy & Physiology with labs	8
Calculus	3
English (3 composition)	6
Humanities	6
World Cultures	3
Social/Behavioral Science	6
Economics	3
Speech	3
Total	66

Please Note: the most current listings of prerequisite courses can be found on our website (<http://pharmacy.uhh.hawaii.edu/admissions/>). Prerequisites are subject to change at the end of each application cycle.

- Completion of the PCAT (www.pcatweb.info) and submission of official scores to PharmCAS (www.pharmcas.org).
- Completion and submission of the PharmCAS application (www.pharmcas.org) and completion and submission of the supplemental application to be sent by UH Hilo-CoP to applicants meeting the minimum qualifications.
- International Applicants must also complete a minimum of 30 semester hours of coursework in the United States at any regionally-accredited college or university. Of the 30 require semester hours, 15 semester hours must be allocated to non-remedial science courses.

Note: Meeting the minimum qualification requirements does not guarantee admission. All eligible applications are reviewed by the UH Hilo-CoP Admissions Committee which applies multiple criteria for the assessment of applications and selection of candidates to be interviewed. UH Hilo-CoP annually accepts 90 students for Fall admissions.

Application Procedure

UH Hilo-CoP operates on a competitive, rolling application basis. In order for students to be eligible for consideration, the students must meet the minimum requirements listed above and complete the following application procedure.

- Students complete, or are in the process of completing, their prerequisite coursework.

- Students take the PCAT. UH Hilo-CoP suggests that students take the PCAT at least the year prior to seeking entry. Please note that PCAT scores must be processed by Harcourt and submitted to PharmCAS in time to meet the designated application deadline.
- Students complete and submit the PharmCAS application and fee(s) (www.pharmcas.org) along with official transcripts from all attended regionally-accredited colleges and/or universities, two (2) letters of recommendation, and PCAT scores by the designated application deadline posted on the PharmCAS website.
- Students complete and submit a supplemental application and application fee from UH Hilo-CoP (<http://pharmacy.uhh.hawaii.edu/admissions/>).

Upon submission of all required application components, the complete file and applicant profile will be reviewed by the CoP Admissions Committee. At said time, the committee will decide to invite the candidate for an interview, place the candidate on hold for further review, or reject the applicant. All candidates who are invited for an interview will be contacted via email. After the personal interview, the applications and interview scores are presented to and reviewed by the Admissions Committee for final admissions decisions.

Doctor of Pharmacy Program Requirements

Professional Year 1 Fall Courses

- PHPP 501 Introductory Pharmacy Practice Experiential (IPPE) I (1)
- PHPS 504 Pharmaceutical Immunology (3)
- PHPS 501 Biochemistry - biomolecules (3)
- PHPS 505 Pharmaceutics I (3)
- PHPP 511 Culture & Inter-professional Health Care (2)
- PHPS 503 Pharmaceutical Calculations (2)
- PHPS 512 Introduction to the Pharmaceutical Sciences (3)

Total of 17 credits

Professional Year 1 Spring Courses

- PHPP 502 Introductory Pharmacy Practice Experiential (IPPE) II (1)
- PHPP 508 Introduction to Biostatistics (3)
- PHPS 509 Pathophysiology (4)
- PHPS 502 Biochemistry - metabolism (3)
- PHPS 506 Pharmaceutics II (3)
- PHPS 507 Foundation of Integrated Therapeutics and OTC drugs (3)

Total of 17 credits

Professional Year 2 Fall Courses

- PHPP 503 Introduction Pharmacy Practice Experiential (IPPE) III (1)
- PHPP 514 Evidence-Based Medicine (3)
- PHPP 515 Integrated Therapeutics I (7)
- PHPS 511 Pharmacokinetics (3)
- Elective (2). Choose **one** course from:
 - PHPS 550 Genetics in Medicine (2)
 - PHPP 550 History of Pharmacy (2)

Total of 16 credits

Professional Year 2 Spring Courses

- PHPP 504 Introduction Pharmacy Practice Experiential (IPPE) IV (1)
- PHPP 520 Pharmacy Law and Ethics (3)

PHPP 523 "Wellness, and Disease Prevention (2)

PHPP 516 Integrated Therapeutics II (7)

PHPS 591 Basic and Applied Toxicology (3)

Elective (1). Choose **one** course from:

PHPS 558 Drug Development and Regulation in the 21st Century (1)

PHPS 553 Radioactivity in Pharmacy – An Introduction to Radiopharmaceutical Sciences (1)

PHPS 554 Herbal Medicines (1)

PHPS 555 Geographic (Tropical) Medicine (1)

Total of 17 credits

Professional Year 3 Fall Courses

PHPP 505 Introduction Pharmacy Practice Experiential (IPPE) V (2)

PHPP 522 Pharmacy Practice Management and Marketing (3)

PHPP 519 Health Care Systems (1)

PHPP 517 Integrated Therapeutics III (7)

PHPP 525 Complementary Medicine (3)

Electives (2). Choose **two** courses from:

HPP 556 Advanced Topics in Hypertension (1)

PHPP 559 Spanish for Healthcare Professionals (1)

PHPS 565 Genetics and Pharmacology of Malaria (1)

PHPP 557 Personal Finance (1)

Total of 18 credits

Professional Year 3 Spring Courses

PHPP 524 Pharmacoeconomics (3)

PHPP 518 Integrated Therapeutics IV (7)

PHPP 521 Applied Pharmaceutical Care (3)

Electives (3). Choose **three** courses from:

Current Topics in Health Care (1)

Pharmacogenetics (1)

Current Advances in Neuropharmacology - (1)

Environmental Toxicology (1)

Emerging Trends in Drug Discover (1)

Managed Care (1)

Total of 16 credits

Professional Year 4 Courses

Fourth Year (P-4) - Advanced Professional Practice Experiences: 42 weeks

PHPP 540 Advanced Pharmacy Practice Experiential - Ambulatory Care (6)

PHPP 541 Advanced Pharmacy Practice Experiential - Community Practice (6)

PHPP 542 Advanced Pharmacy Practice Experiential - Medicine (6)

PHPP 543 Advanced Pharmacy Practice Experiential - Hospital Pharmacy (6)

PHPP 544 Advanced Pharmacy Practice Experiential - Elective I (6)

PHPP 545 Advanced Pharmacy Practice Experiential - Elective II (6)

Total of 36 credits

Doctor of Philosophy (Ph.D.) in Pharmaceutical Sciences

Contacts and Program Director:

University of Hawaii – Hilo, College of Pharmacy (UH Hilo - CoP)

Office of Student Services (OSS)

Ph.D. Program Admissions

200 W. Kawili Street, Hilo, HI 96720

Fax: (808) 933-3889

Email: pharmacy@hawaii.edu

Anthony D. Wright Ph.D.

Ph.D. Program Director

College of Pharmacy

34 Rainbow Drive, Hilo, HI 96720

Phone: (808) 933-2866 or (808) 981-4521

Email: adwright@hawaii.edu

Admission Requirements

Acceptance is granted at the discretion of the Pharmaceutical Science Ph.D. Admissions Committee based on the criteria below.

1. Successful completion of the Ph.D. in Pharmaceutical Sciences Application process.
2. Applicants must have a B.S., M.S., Pharm.D. and/or equivalent degree.
3. Applicants must have a minimum Grade Point Average of 3.0 out of 4.0 or the equivalent in the last 60 semester credits of undergraduate and in all post-baccalaureate work.
4. Applicants must have successfully completed with a grade "C" or higher: General Biology I and II for Science Majors with Labs, General Chemistry I and II for Science Majors with Labs, Organic Chemistry I and II for Science Majors with Labs, Calculus 1 or Advanced Calculus.
5. A personal statement of objectives is required which includes your background, professional goals and academic and research interests.
6. Resume.

7. Official Graduate Record Examination (GRE) scores sent directly from ETS: minimum 500 verbal, 500 quantitative, and 4.5 for analytical.
8. Three Letters of Recommendation using the "Ph.D. Letter of Recommendation Form". The letters should be written by people who can speak to your educational ability, motivation, and character, and/or leadership experiences. At least one of your letters MUST be written by a Professor of one of the Natural or Physical Sciences. Please allow the Recommenders plenty of time to complete this form, and have them mail the letter directly to the UHH-CoP, Ph.D. Program Admission Office.
9. Completed interview either in person or electronically (e.g. SKYPE.)

Foreign applicants must also submit:

1. Official TOEFL score report.
2. International Graduate Student Supplemental Information Form <http://www.uhh.hawaii.edu/admissions/forms/documents/sup-form.pdf>.

Further information on the details of fulfilling admissions requirements are available from the Ph.D. Program Admissions office pharmacy@hawaii.edu, and at <http://pharmacy.uhh.hawaii.edu/academics/graduate/admissions.php>.

Graduation Requirements

1. Successful achievement of candidate status after year one of the student's program.
2. Regardless of any previous graduate experience, a minimum of 24 didactic credit hours must be taken at UH Hilo before the Ph.D. degree can be granted.
3. Completion of all graduate courses with an overall average grade of no less than "B".
4. Completion of one seminar each year; a minimum grade of "B" should be achieved for this presentation.
5. At the end of second semester of the program successful completion of a comprehensive oral examination following a seminar presentation of the candidate's plans for their dissertation. In this examination the student's Graduate Committee will determine if the student is sufficiently prepared in the selected field of study to continue with their dissertation.

6. Successful completion of a dissertation, with enrollment in a minimum of 56 credits of PHPS 800. Upon completion of the dissertation a final oral dissertation defense will follow.
7. Completion of at least 96 combined credits of graduate courses and dissertation; PHPS 600, PHPS 700 and PHPS 800.
8. Compliance with UH Hilo rules and regulations for graduation.

To successfully complete the PhD degree candidates must complete; qualifying year 1 (Minimum average GPA = 3.0), a minimum 66 credit of Dissertation, a minimum of 96 credit hours overall (Minimum average GPA = 3.0).

PhD Year 1 (Qualifying Year) Fall Courses Total of 11 credits

PHPS 750 PhD Overview of the Pharmaceutical Sciences (3)
 PHPS 751 PhD Biochemistry I– Biomolecules (4)
 PHPS 755 Advanced Pharmaceutics I, including Dosage form Design and Processing (3)
 PHPS 797 Research Laboratory Rotation and Graduate Seminar (1)

PhD Year 1 (Qualifying Year) Spring Courses Total of 13 credits

PHPS 800 Dissertation Research and Graduate Seminar – Including qualifying seminar (6)
 PHPS 752 PhD Biochemistry I– Biomolecules (4)
 PHPS 756 Advanced Pharmaceutics II, including Dosage form Design and Processing (3)

PhD Year 2 Fall Courses Total minimum of 12 credits

PHPS 800 Dissertation Research – (Minimum 6)
 Electives and Graduate Seminar – (Minimum 6)

PhD Year 2 Spring Courses Total minimum of 12 credits

PHPS 800 Dissertation Research – (Minimum 6)
 Electives and Graduate Seminar – (Minimum 6)

PhD Year 3 Fall Courses Total minimum of 12 credits

PHPS 800 Dissertation Research – (Minimum 6)
 Electives and Graduate Seminar – (Minimum 6)

PhD Year 3 Spring Courses Total minimum of 12 credits

PHPS 800 Dissertation Research – (Minimum 6)
 Electives and Graduate Seminar – (No minimum)

PhD Year 4 Fall Courses Total minimum of 12 credits

PHPS 800 Dissertation Research – (Minimum 6)
 Electives and Graduate Seminar – (No minimum)

PhD Year 4 Spring Courses Total minimum of 12 credits

PHPS 800 Dissertation Research – (Minimum 6)
 Electives and Graduate Seminar – (No minimum)

PhD Year 5 and beyond are taken on an as required basis.

Total minimum of 12 credits

PHPS 800 Dissertation Research – (Minimum 6)

Electives and Graduate Seminar – (No minimum)

Electives – Listed Alphabetically

Alpha/Number	Course Title	Credits
PHPS 701	Apoptosis and Angiogenesis in Disease Processes and Drug Development	1
PHPS 702	Biological Evaluation of Natural Products	3
PHPS 703	Cancer Biology	2
PHPS 704	Combinatorial Chemistry and High Throughput Technologies in Drug Discovery	2
PHPS 705	Designing Clinical Research	3
PHPS 706	Environmental Toxicology	2
PHPS 707	Genetics in Medicine	2
PHPS 708	Isolation methods for natural product discovery	2
PHPS 709	Instrumental methods and structure elucidation of mainly natural products	2
PHPS 710	Laboratory Animal Care, Management and Medicine I	2
PHPS 711	Laboratory Animal Care, Management and Medicine II	2
PHPS 712	Medical Cell Biology	2
PHPS 713	Medicinal Chemistry I	2
PHPS 714	Medicinal Chemistry II	2
PHPS 715	Medicinal Chemistry III	2
PHPS 716	Medicinal Chemistry IV	2
PHPS 717	Medicinal Chemistry of CNS Drugs and Development of in vivo CNS Tracers	2
PHPS 719	Molecular Biology Techniques and Applications for Healthcare Professionals	2
PHPS 720	Natural Products and Cancer Chemoprevention	2
PHPS 721	Neuropsychopharmacology	2
PHPS 722	Pharmaceutical Marketing	2
PHPS 723	Pharmacognosy	2
PHPS 724	Pharmacology I	3
PHPS 725	Pharmacology II	3
PHPS 726	Pharmacology III	3
PHPS 727	Pharmacology IV	3
PHPS 728	Phytochemistry of Terrestrial Plants	2
PHPS 729	Receptor Theory and Signal Transduction	2
PHPS 730	Sample collection, documentation and preservation	1
PHPS 731	Toxicants and Toxicity	3
PHPS 732	Toxic plant natural products and their therapeutic potential	2

Master of Science (M.S.) in Clinical Psychopharmacology

Contacts and Program Director:

Edward Fisher, fishere@hawaii.edu, 933-2865
 University of Hawaii at Hilo, College of Pharmacy
 200 W. Kawili Street, Hilo, HI 96720
 Fax: (808) 933-3889
 Email: pharmacy@hawaii.edu

The M.S. in Clinical Psychopharmacology has been approved by the Western Association of Schools and Colleges and is awaiting approval by the Board of Regents of the University of Hawai'i. For information on the program, admission requirements, and curriculum, please contact the program director, Dr. Edward Fisher.

M.S. in Tropical Conservation Biology and Environmental Science

Program Director: Donald Price, Ph.D., donaldp@hawaii.edu
Natural Sciences Division Office

Life Sciences 2, University of Hawai'i at Hilo
200 West Kāwili Street, Hilo, HI 96720
Tel: (808) 974-7383

Application Process

Applications will be examined beginning February 1 for admission the following Fall semester. After February 1 applications will be accepted on a space available basis until May 1. The UH Hilo Graduate Office of Admissions receives applications and supporting documents and maintains the applications through final notification. If you do not hear from the Graduate Office of Admissions within 30 days of submission of your application, please contact the office at (808) 974-7414.

Applications that meet the requirements will be forwarded to the Tropical Conservation Biology and Environmental Science Admissions Committee for a comprehensive review. Admission decisions made by the committee will be forwarded to the Graduate Office of Admissions which sends the final notification to the applicant.

Admission Status: The applicant's admission status is valid only for the semester to which the applicant is accepted. Applications for students who do not register or who withdraw from the University are voided but retained for a period of one (1) year. Students may reapply for admission to the next year by notifying the Graduate Office of Admissions and submitting the application fee.

Admission Requirements

1. A baccalaureate degree from a regionally-accredited U.S. institution or from a nationally-recognized foreign institution.
2. Communicate with a potential advisor(s) from the list of participating faculty with similar research interests (see Internet Web Site). In the personal statement, list advisor(s) from the TCBES faculty who agrees to sponsor the application and to serve as primary advisor upon acceptance to the program.
3. A minimum combined verbal and quantitative score of 1000 on the General Graduate Record Exam (GRE).
4. Three letters of recommendation submitted by references who have observed or supervised the applicant's performance and are able to comment on the quality of the applicant's academic achievement, ability to pursue graduate study, and general character.
5. Grade point average of 3.0 (on a scale where A = 4.0) or the equivalent in the last four semesters of approximately 60 semester credits of undergraduate work and/or in all post-baccalaureate work.

Note: In special circumstances acceptance may be granted at the discretion of the selection committee for those students who meet some, but not all, the above requirements.

Note: Recommended Baccalaureate Courses for Admission to the Program:

- 2 years of chemistry
- 1 year of calculus
- 1 course in geographic information or remote sensing
- 1 course in statistics
- 2 courses in life sciences
- 2 additional courses in physical sciences

Transfer of Credits

Requests for transfer of graduate credits must be made during the first semester in which the student is enrolled in the program. Only credit hours with a grade of B or better from accredited universities are transferable. Transfer credit hours must have been completed within five years preceding the date upon which the advanced degree is to be conferred by UH Hilo. The TCBES program will decide which credits will be transferred.

International Credentials

A statement describing minimum academic qualifications expected of international applicants may be obtained from the Graduate Office of Admissions. These qualifications must be completed prior to enrollment.

M.S. TCBES Check List

(Reminder: Priority application deadline is February 1)

- ✓ Completed UH Hilo Graduate application form
- ✓ Personal statement of objectives
- ✓ Application fee
- ✓ Official transcripts from all colleges or universities (must be received directly from the institution, or in a sealed envelope if submitted with your application)
- ✓ General Test, Graduate Record Exam
- ✓ Three Letters of Recommendation received at UH Hilo by February 1
- ✓ Official TOEFL score report, if required
- ✓ Verification of financial status (for international applicants) [hilo.hawaii.edu/forms/]

Program Curriculum

Total Credits Required:

Plan A = 30 credits

Plan B = 36 credits

Core Courses (8) credits required for all M.S. TCBES students:

CBES 600 (3) Conservation Biology and Environmental Science

CBES 601 (3) TCBES Field and Laboratory Methods

CBES 602 (1) Research Seminar in TCBES

CBES 603 (1) Natural Resource Management Seminar

Elective Courses*:

Plan A: 16 elective credits of 600-level CBES courses.

Plan B: 25 elective credits of 600-level CBES courses.

*A maximum of 6 credits of 400-level courses may count toward these elective credits.

CBES 609 (3) Principals of Landscape Ecology

CBES 610 (3) Environmental Chemical Analysis

CBES 615 (3) Global Environmental Change

CBES 620 (3) Research Techniques in Molecular Conservation Biology

CBES 630 (3) Near shore Monitoring and Analysis

CBES 633 (3) Biodiversity

CBES 635 (3) Physical Environment of Ecosystems

CBES 640 (3) Advanced Remote Sensing and Digital Image Processing

CBES 643 (3) Ecological Physiology

CBES 645 (3) Applying Social Science to Marine and Coastal Resource Mngmnt

CBES 650 (3) Oceanographic Monitoring and Analysis

CBES 665 (3) Environmental Toxicology

CBES 660 (3) Molecular Ecology

CBES 670 (3) Advanced Techniques in Geographic Information Systems

CBES 675 (3) Conservation Genetics

CBES 677 (3) Quantitative Ecology

CBES 680 (3) Advanced Statistical Analysis and Research Design

CBES 681 (3) Spatial Data Analysis and Modeling

CBES 685 (3) Behavioral Ecology and Evolutionary Analysis

Other Courses:

CBES 690 (3) Internship (Plan B: 3 credits required)

CBES 694 (1-3) Special Topics in Tropical Conservation Biology and Environmental Sciences

CBES 699 (1-3) Directed Research

CBES 700 (1-6) Thesis Research (Plan A: 6 credits required)

Graduate Courses

Tropical Conservation and Environmental Science (CBES)

College of Arts and Sciences

CBES 500 Master's Plan Studies (1) Used for continuous enrollment purposes. Must be taken as CR/NC. Does not count toward fulfillment of degree requirements. Pre: Master's or Doctoral candidacy and instructor's consent.

CBES 600 Conservatn Biol & Environ Sci (3) Fundamental principles of ecology, evolution, and environmental sciences, with an emphasis on the conservation, management and restoration of organisms and ecosystems. Discussion will include the physical and biological factors that affect and shape tropical organisms and ecosystems: biodiversity, biogeography, climate, genetics, nutrient cycling, population viability, reproductive systems and topography. Tropical organisms and ecosystems world-wide will be compared with an emphasis on Hawaii.

CBES 601 CBES Field & Laboratory Method (3) A practical course in laboratory and field methods and techniques in conservation biology and environmental sciences. Students will be introduced to methods used for studying, monitoring and experimenting upon animals and plants in a diversity of habitats. Emphasis is placed on the choice of techniques for data collection, followed by rigorous analysis of results with the application of appropriate statistical analyses. Students will also become familiar with the biological and environmental diversity of the Island of Hawaii. The information collected will be more fully analyzed in CBES 605.

CBES 602 Research Seminar in TCBES (1) A research seminar in tropical conservation biology and environmental science. Presentations will focus on research related to conservation biology and environmental science. Following the seminar there will be a question and answer discussion session with the seminar speaker and students. Students will also give a short presentation of their research or internship projects. These seminars will be critiqued by the instructor and the students for both the content of the project and presentation style.

CBES 603 Natural Resource Mgt Seminar (1) Seminars given by TCBES faculty, visiting scientists from other universities, federal, state and non-profit agency personnel working in fields related to TCBES. The seminars will be focused on natural resource management issues. Following the seminar there will be an open question and answer discussion session with the seminar speaker and the students. Student will also give short presentations of their research or internship projects. These seminars will be critiqued by the instructor and the students for both the content of the project and presentation style.

CBES 605 Quantitative Research Methods (3) Intensive lecture and field course designed to prepare students to conduct independent research. Focus on learning how to ask relevant research questions, hypothesis testing, experimental design, and applications of statistics. Presentation of a research proposal orally and in written form. Current methodological techniques in terrestrial and marine ecology emphasized, with hands-on approaches to learning how to use the latest technological equipment.

CBES 609 Theory/Apps Landscape Ecology (3) This course explores the theory and application of landscape ecology as a framework for landscape research, analysis and management. Students will become well-versed in concepts, methods and applications of landscape ecology through reading classic and contemporary literature and performing

independent research. Topics will include: characterizing landscape patterns and dynamics, application of landscape management, and emerging areas of research.

CBES 610 Environmental Chem Analysis (3) Basic concepts of chemical measurements in environmental media. Analysis in environmental matrices with emphasis on water, soil, air and tissue. Topics include basics of calibration and measurement, sample collection, sample lability, chemical interferences, matrix effects and reporting analyses of chemicals in the environment. Pre: CHEM 124, 124D, 124L, 125, 125D, 125L, 241, 330, 330L. Recommended: CHEM 331.

CBES 615 Global Environmental Change (3) Discusses the natural and anthropogenic processes regulating the function of the Earth system. The history and mechanisms of global change processes and the means by which human activities alter Earth system function at local to global scales will be examined, along with potential consequences of and solutions to global change. Focuses on interrelationships of the atmosphere, hydrosphere, geosphere and biosphere. Provides students with an understanding of the role that multidisciplinary science and technology have on research of the Earth system.

CBES 620 Rrsch Techniq Molecular C Biol (3) (lab) Major advances in molecular biology important to conservation studies are examined. Molecular techniques that are applied to conservation studies are performed, including PCR, RFLP, AFLP, DNA sequencing, and microsatellite analysis. Data analysis is examined, including a number of popular genetics software packages that enable pairwise comparisons of large data sets and the construction of genetic distance matrices and networks. Pre: BIOL 357L and 481L or equivalent, or instructor's consent.

CBES 630 Nearshore Monitoring & Analysis (3) (lec., lab) Theoretical and practical planning and implementation of data collection and analysis of the intertidal and shallow subtidal marine environments. Techniques include measuring geological, chemical, and physical environments and estimating the abundance and diversity of organisms. Pre: MARE 350 & 350L, CBES 610; or instructor's consent.

CBES 633 Biodiversity (3) This lecture and discussion course will examine the primary theories and evidence for the origin and maintenance of species richness in hyper-diverse communities, using tropical rainforests and/or coral reefs as model systems. Topics will include historical biogeography, speciation, coevolution, neutral vs. non-neutral models for the maintenance of species richness, and biodiversity conservation. Methodological approaches will also be discussed.

CBES 635 Physical Environment of Ecosys (3) Examination of the influences of climate, hydrology, geology and soils on terrestrial and aquatic ecosystems. Emphasis on mechanisms of change, anthropogenic impacts and monitoring networks. Pre: GEOL 100 or 111 or GEOG 101; BIOL 281 or GEOG 309 or equivalent; or instructor's consent.

CBES 640 Adv Remote Sensing/Digital Ima (3) (lec., lab) Digital image processing of satellite-derived remotely sensed data for earth resource analysis and applications. Specific applications include image enhancement, classification, post classification analysis, special transformations, and multi-temporal analysis for land cover change detection. Pre: GEOG 470 or equivalent; or instructor's consent.

CBES 645 Apply Social Sci to Marine/Coa (3) Social science methods for profiling natural resource dependent communities and assessing the social and economic impacts of ecosystem management and regulation. Marine communities and fisheries in the Pacific region, with some discussion of terrestrial resource management. Relevant laws, policies and

management agencies. Public input, best science, realities of management conflict and compromise. Social impact assessment, case studies and public and professional roles in management.

CBES 650 Oceanographic Monitoring & Ana (3) (Iec., lab) Theoretical and practical planning and implementation of data collection and analysis of neritic and pelagic marine environment from an oceanographic vessel platform. Techniques include measuring geological, chemical and physical nearshore properties; estimating the abundance and diversity of plankton, nekton, and benthos; and use of modern data recording and analyzing systems. Pre: MARE 350, 350L, and CBES 610 or instructor's consent.

CBES 655 Ecological Physiology (3) Physiological adaptations to environmental variation including physiological and biochemical mechanisms for food acquisition and digestion, thermal energetics, respiratory gas exchange, activity metabolism and osmoregulation.

CBES 660 Molecular Ecology (3) This lecture and discussion course will examine the molecular genetic applications in current ecological research. Topics will include the fundamentals of molecular biology as they pertain to ecological systems. Theoretical background of modern molecular genetic techniques will also be discussed. The format of the course will include student-led seminar discussions of recent primary literature in molecular ecology. Some genetics background necessary.

CBES 665 Environmental Toxicology (3) Biochemical basis for toxicity. Chemical distribution and fate in the body; molecular mechanisms and effects of toxic action. Emphasis on environmental toxicants. Pre: Upper division courses in biochemistry and physiology, or instructor's consent.

CBES 670 Geog Info Sys & Visualization (3) Key principles and concepts of Geographic Information Systems (GIS) that includes: a theoretical foundation, software training, real-world applications and techniques in visualization of spatial information relevant to conservation biology and environmental science research. This course is dual listed with GEOG 480.

CBES 675 Conservation Genetics (3) Basic concepts of population genetics and molecular evolution as it applies to conservation biology. Specific topics include population dynamics and inbreeding depression, and population genetic structure related to ecological parameters and requirements of an organism.

CBES 677 Quantitative Ecology (3) This course will consist of weekly lectures and computer-based in-class exercises. It will explore multiple regression, General Linear Models including Logistic and Poisson regression, Mixed effects models, and various other analysis of variance approaches, including repeated measures designs. Diagnostics and model selection procedures such as Akaike's Information Criteria (AIC) will be strongly emphasized. By the end of the course, students should have a good general understanding of the ways to design, analyze, and model many types of biological datasets.

CBES 680 Adv Stats Analysis & Rsrch Des (3) An advanced examination of statistics and research design in conservation biology and environmental science. Emphasis on specific applications and underlying assumptions, design of experiments, and observational schemes for research project. Extensive computer analysis is employed, including MINITAB and SAS statistical software. Pre: CBES 610 or instructor's consent.

CBES 681 Spatial Data Analysis/Modeling (3) CBES 681 is an advanced course in spatial analysis and modeling specific to Geospatial Information Science. This course will emphasize the correct application of Geospatial software tools along with the underlying theories and opportunities for applied learning in terrain modeling, suitability modeling, predictive ecosystems mapping and data visualization. Further knowledge and skills will be developed by customization of GIS applications through interface design and automation of geospatial analysis procedures. This course is dual listed with GEOG 481.

CBES 685 Behavioral Ecol & Evol Analyse (3) Principles of behavioral ecology and evolution with a focus on conservation biology. Research techniques in behavioral ecology related to analyzing populations in geographically and age-structured populations. The importance of re-

productive strategies, habitat selection, foraging behavior, parental care, social organizations, and the importance of migration and movement patterns on the regulation of population sizes and evolution. Population, quantitative and species genetics as it relates to evolution, speciation, and biodiversity. Pre: CBES 610 or instructor's consent.

CBES 690 Internship (3) Internship for Plan B Masters students in TCBEs with a federal, state or non-government agency with projects in Hawaii or other Pacific Islands. Internship project will be developed and carried out in consultation with the host agency and the approval of the TCBEs graduate committee. Development of the internship is formalized through a written proposal, periodic written reports and meetings with the graduate advisor and host agency representative. Final report and oral presentation are required at the end of the internship.

CBES 700 Thesis Research (1-6) Research in conservation biology and environmental sciences for Plan A Master's students.

CBES x94 Special Topics in Subject Matter (Arr.) (IO) Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

CBES x99 Directed Studies (Arr.) (IO) Statement of planned reading or research required. Pre: instructor's consent.

China-U.S. Relations (CHUS)

College of Arts and Sciences

CHUS 500 Master's Plan Studies (1) Used for continuous enrollment purposes. Must be taken as CR/NC. Does not count toward fulfillment of degree requirements. Pre: Master's or Doctoral candidacy and instructor's consent.

CHUS 600 Approaches & Perceptns: Unders (3) Critical analysis of issues and problems in American studies of China and Chinese perceptions of America. Historical and comparative survey of traditional Chinese culture and American civilization.

CHUS 610 Probs & Iss of Contemp China (3) Multidisciplinary examination of problems and issues affecting lives and institutions of contemporary China: economic development, population growth, urbanization, political and social change.

CHUS 621 Seminar in Chinese Philosophy (3) Examines major philosophical ideas in the development of Chinese culture from the modern and the post-modern perspectives, and studies their impact upon the life of peoples in the Pacific and the U.S.

CHUS 622 Chinese Religions and the West (3) Exploration of the ways Chinese religious/philosophical traditions have influenced/been influenced by Western religious, philosophical, and scientific thought. Emphasis on traditions of Confucianism and Taoism, with some attention to Buddhism.

CHUS 623 Chinese Immigrants in U.S. (3) Examines the experience of Chinese immigrants in North America. Studies the formation of Chinese immigrant communities and basic processes of ethnic self-identification.

CHUS 624 Ethnography of Modern China (3) An attempt to understand the culture of China by reference to ethnographic description of the everyday lives of average Chinese in rural settings. Kinship and family, religious belief and practice, agriculture and economic adaptation, and community relations, in historical context. Emphasis on the lives of peasants in the ethnographic present, with attention to regional variability.

CHUS 630 Compar Iss in Business Ethics (3) This course will explore differences and similarities between Eastern and Western approaches to ethical decision-making, particularly with regard to improving governance of relationships between business, government, and civil society. Special emphasis will be placed on the compatibility of Eastern holistic moral philosophies with system-based management concepts and practices such as sustainable development, corporate social responsibility, global corporate citizenship, multi-stakeholder dialogue, social and environmental auditing, and triple bottom line accountability.

CHUS 640 Chnse & US Economies: Comparat (3) An economic analysis of the Taiwanese, the P.R.C. and the U.S. economies. The economic analysis is supplemented by utilizing a historical, comparative and interdisciplinary approach.

CHUS 641 Seminar US-China Environmtl Is (3) U.S. and Chinese environmental attitudes and policies in comparative context. Comparative domestic policies over a wide range of environmental issues and bilateral cooperation and conflict in international environmental affairs. Pre: GEOG 326 or graduate standing.

CHUS 643 Adv Study Contemp Chns Politic (3) Examines contemporary Chinese political issues and problems in the post-Deng transitional period for China. Focus will be on informal-elite politics, institutional development, erosion of ideology, military role, central-provincial tension, and regionalism. May be repeated once for credit. Pre: POLS 351.

CHUS 650 Intercult Comm: China and US (3) This course provides an overview of major theories of intercultural communication between the Chinese and U.S. Americans and engages in theory-based comparisons of culture and communication in Chinese and U.S. societies.

CHUS 661 Comparative Poli Econ: US & Gre (3) The political economy of the U.S., Peoples Republic of China (P.R.C.), Hong Kong and Taiwan. Emphasis will be on U.S. and Greater China economic relations and the effect of the political relations on international trade of these two countries.

CHUS 670 Chinese & Chinese Lit Amer (3) This course will evaluate and analyze the image of the Chinese in America, especially in literary and film representation. The class will begin with images from the turn of the 19th century (i.e. posters, cartoons, advertisements) and such works as Harte and Twain's play "Ah Sin." We will then move on to how Chinese American writers themselves engaged in portraying their own culture and people here in the United States, including novels about immigration and Chinatown.

CHUS 680 Chinese Culture Study Tour (3) A living experience and an academic study of Chinese thought and culture inside and outside China.

CHUS 695 Seminar Comparative Study C&US (3) Comparative study of Chinese and American cultures employing perspectives arising out of two basic core courses. Focus may be on past or current events, ancient or modern texts, or some other phenomena.

CHUS 700 Thesis Research (1-6) Graduate level thesis research, theoretical development, and writing. Students may register for 1 to 6 credit hours per semester for a maximum of 6 credits for M.A. Plan A. Pre: instructor's consent, thesis committee, and program chair; completion of "Thesis Form for Master's Degree".

CHUS x94 Special Topics in Subject Matter (Arr.) (IO) Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

CHUS x99 Directed Studies (Arr.) (IO) Statement of planned reading or research required. Pre: instructor's consent.

Education (ED)

College of Arts and Sciences

ED 500 Master's Plan Studies (1) Used for continuous enrollment purposes. Must be taken as CR/NC. Does not count toward fulfillment of degree requirements. Pre: Master's or Doctoral candidacy and instructor's consent.

ED 600 Ed Of Ethnic Groups in Hawaii (3) Survey of social-psychological learning characteristics, heritage, identity problems of Hawai'i ethnic groups, study of prejudice and inter-ethnic hostilities as related to education and teaching.

ED 602 Technology in Education (3) Selection, evaluation and utilization of instructional materials for systematic achievement of curriculum goals; investigation of innovative technological advances for use in teaching and training. Pre: acceptance into the M.Ed. program or instruc-

tor's consent.

ED 608A Fund Of Educatn Research I (1) Systematic study of the purposes of educational research, evaluation and use of research, and introduction of research design principles with emphasis on classroom applications. Pre: acceptance into the M.Ed. program or instructor's consent.

ED 608B Fund Of Educatn Research II (1) Principles of research design, methodology, and analysis as applied to field research. Pre: successful completion of ED 608A or instructor's consent.

ED 608C Fund Of Educatn Research III (1) A synthesis and application of research skills which culminates in an original research proposal. Pre: successful completion of ED 608A and B or instructor's consent.

ED 610 Foundations Of Education (3) Social and intellectual history of education. Historical and contemporary relationships between schools and society. Foundations of the major philosophies of education. Contemporary educational theory and practice as related to major historical, philosophical and social factors in American culture. Pre: acceptance into the M.ED. program or instructor's consent.

ED 611 Adv Educ Psychology (3) Foundations of educational psychology through the vehicle of an exploratory study. Inquiry approach stresses learning theory, measurement techniques, and research skills in education. Pre: acceptance into the M.Ed. program or instructor's consent.

ED 612 Literature Review in Education (3) Advanced academic study and writing processes for analyzing and evaluating current educational research articles, literature reviews and graduate student publications. Development of scholarly educational research skills with a focus in content area discipline. Investigation of theoretical and methodological issues of research. Pre: acceptance into the M.Ed. program or instructor's consent.

ED 616A Assess & Evaluation in Ed I (1) Systematic study of the theory and technology of measurement, assessment and evaluation in educational settings, emphasizing the development and use of traditional techniques. Pre: acceptance into the M.Ed. program or instructor's consent.

ED 616B Assess & Evaluation in Ed II (1) Systematic study of the theory and technology of alternative assessment and evaluation in educational settings with emphasis on field-based applications. Pre: successful completion of ED 616A or instructor's consent.

ED 616C Assess & Evaluation in Ed III (1) Synthesis and application of measurement, assessment and evaluation in the use, adaptation, and/or creation of appropriate techniques in an original research proposal or thesis. Pre: successful completion of ED 616A & B.

ED 620 Indiv Differences: Learner (3) Systematic study of the conceptual framework of inclusive education which consists of special education, gifted and talented education and compensatory programs. Emphasis will be placed upon individual student characteristics and strategies for effective instruction. Pre: acceptance into the M.Ed. program or instructor's consent.

ED 622 School Curriculum (3) Development and improvement of curriculum. Explanation of contemporary curricular issues which impact teaching and learning in the classroom. Emphasis on school reform and renewal. Pre: acceptance into the M.Ed. program or instructor's consent.

ED 625 Seminar in Teaching Fld (3) Study in trends, research, and problems of implementation in interdisciplinary teaching. Pre: acceptance into the M.Ed. Program or instructor's consent.

ED 635 Adv Instructional Strategies (3) An examination of various instructional strategies including information processing, social interaction, and personal development. Theory and research in the development, selection, implementation and evaluation of instructional models. Pre: acceptance into the M.Ed. program or instructor's consent.

ED 643 Learning Environments I (1) Introduction to theory and practice of classroom management at the elementary and secondary school level. Exploration of student motivation and communication techniques as related to the establishment of a positive learning environment. Pre: Admission to the Master of Arts in Teaching program. Co-req: ED 640, 650, 660, and 670.

ED 650 Planning for Instruction (1) Introduction to instructional practice, including effective planning, content knowledge, and assessment of student learning experiences. Exploration of specialized professional association standards as the basis for instructional planning. Pre: Admission to the Masters of Arts in Teaching program. Co-req: ED 640, 643, 660, and 670.

ED 670 Field Experience I (1) Practical application of theories of learner development, learning environments, and instructional planning in local schools. Introduction to schools as learning communities. Pre: Admission to the Master of Arts in Teaching program. Co-req: ED 640, 643, 650, 660.

ED x94 Special Topics in Subject Matter (Arr.) (IO) Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

ED x99 Directed Studies (Arr.) (IO) Statement of planned reading or research required. Pre: instructor's consent.

Hawaiian Language (HAW)

Ka Haka 'Ula O Ke'elikōlani College of Hawaiian Language

HAW 500 Master's Plan Studies (1) Used for continuous enrollment purposes. Must be taken for CR/NC. Does not count toward fulfillment of degree requirements. Pre: Master's or Doctoral candidacy and instructor's consent.

HAW 603 Grad Level Hawn Lang (3) Further development of Hawaiian language ability from the B.A. level to a level appropriate for graduate work. B.A. base reviewed with correction of any problem areas. Introduction of additional patterns, vocabulary, and styles in both oral and written form. Use of resources from late monarchy and early territorial periods. Pre: Admission to MA program in Hawaiian Language and Literature.

HAW 630 Research Methods in Hawn Lang (3) Seminar in which students explore and choose thesis topics.

HAW 631 History of Hawaiian Lang & Lit (3) Hawaiian language and literature since contact with Europeans. Styles of language and types of literature. Relationships between Hawaiian and other languages, especially Hawai'i Creole English. Pre: HWST 452 or 453. Recommended: LING 331, 421, and 437.

HAW 632 Hawaiian As Second Language (3) Teaching Hawaiian to speakers of other languages, particularly Hawaiian Creole English. This includes problems faced by students in acquiring native-like Hawaiian and history of Hawaiian language teaching. Pre: HAW 453 and 454. Recommended: HAW 431 and LING 351.

HAW 654 Advanced Hawn Grammar (3) Advanced aspects of Hawaiian grammar. Pre: HAW 453, 454; LING 321.

HAW 690 Study in Hawn Spking Community (3) Off-campus field work experience. Pre: HAW 453, 454, and 631.

HAW 693 Thesis and Proposal Writing (3) Seminar for writing and presentation of master's thesis proposal or a section of the master's thesis. Pre: Permission of instructor (conditioned on completion of all required course work prior to writing the thesis).

HAW 700 Thesis Research (1-6) Research and writing of thesis. Pre: HAW 630

HAW x94 Special Topics in Subject Matter (Arr.) (IO) Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

HAW x99 Directed Studies (Arr.) (IO) Statement of planned reading or research required. Pre: instructor's consent.

Hawaiian Studies (HWST)

Ka Haka 'Ula O Ke'elikōlani College of Hawaiian Language

HWST 661 Advanced Hawn Music (3) Examination of indigenous and foreign forms found in acculturated Hawaiian music. Pre: HWST 471 and 473.

HWST 662 Applied Hawaiian Chant (3) Applied study of the performance of various Hawaiian chant styles. Pre: HWST 462, 473, 474. Recommended: HWST 453.

HWST 663 Traditional Hawn Literature (3) Focuses on indigenous oral and written literature forms and their relationship to folk tales. Pre: HWST 463, 454 or instructor's consent.

HWST 664 European Influenced Hawn Lit (3) Hawaiian literature developed on European models such as biographies, late nineteenth-century histories and journals. Pre: HWST 453 and HAW 425.

HWST 665 Ethnological & Hist Narratives (3) Descriptions written in Hawaiian regarding traditional Hawaiian culture and history. Cultural topics range from religion and court life to farming and fishing. Conducted in Hawaiian. Pre: HAW 453, HWST 663. Recommended: ANTH 385, 386 and HWST 213.

HWST 690 Study in Overseas Ind Lg Comm (3) Individual off-campus field work experience in an overseas endangered indigenous language community. Participant-observation and interviewing to learn about endangered status of the language and ongoing revitalization work. Comparison to Hawaiian as an endangered language.

HWST x94 Special Topics in Subject Matter (Arr.) (IO) Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

HWST x99 Directed Studies (Arr.) (IO) Statement of planned reading or research required. Pre: instructor's consent.

Ke'elikōlani Education (KED)

Ka Haka 'Ula O Ke'elikōlani College of Hawaiian Language

Built upon a core commitment to Hawaiian language and culture education, Ka Haka 'Ula O Ke'elikōlani provides courses that also address the broader world of indigenous peoples and the use of Hawaiian as an official medium of education for the State of Hawai'i. Courses other than Hawaiian language (HAW) and Hawaiian Studies (HWST) are marked with an initial K (for Ke'elikōlani) followed by an appropriate alpha, e.g. IND (Indigenous Studies), ANT (Anthropology), ED (Education), etc.

KED 550 Coop Tchg Sem Maui Ola (2) Indigenous teacher education issues for providing effective professional leadership for new teachers. Content focuses on teacher development and support strategies, assessment of performance, and conducting effective conferences for the student teacher. Must be taken CR/NC. Conducted in Hawaiian. Pre: teaching license with a minimum of one year Hawaiian language immersion, Hawaiian Studies, or Hawaiian language teaching experience; minimum of three years college-level Hawaiian language course work; and permission from the College.

KED 554 Maui Ola: Learning & Teaching (4) A systematic approach to develop, implement and assess culture-based learning and teaching for the maui ola environment. Content includes understanding of the natural learning cycle; lesson design and delivery; application, alignment, infusion, and assessment of standards; and curriculum cohesiveness. Conducted in Hawaiian.

KED 620 Foundations for Hawn Medium Ed (3) Goals of Hawaiian medium education and their cultural, philosophical, historical and legal bases. Basic tools for planning, developing, delivering and evaluating instruction of Hawaiian-speaking children, including techniques for management and age-appropriate development from a Hawaiian cultural base. Conducted in Hawaiian. Pre: Permission from College.

KED 621 Lang Arts in Hawn Medium Educ (3) Literacy in Hawaiian and associated comprehension and speaking skills. Teaching other languages, including English, to Hawaiian-literate students. Use and teaching of oral and written literature in dramatized presentations. Conducted in Hawaiian. Pre: Permission from the College.

KED 622 Math & Sci in Hawn Medium Educ (2) Mathematical and scientific concepts within a Hawaiian cultural and environmental framework. Techniques for teaching content, problem-solving and critical thinking to Hawaiian-speaking children. Conducted in Hawaiian. Pre: Permission from College.

KED 623 Social Studies Hawn Medium Ed (2) Major global and local social processes that affect the lives of Hawaiian-speaking children and their families. Integration of social studies and practical arts with a Hawaiian historical and cultural perspective. Conducted in Hawaiian. Pre: Permission of the College.

KED 624 Tech/Arts/PE in Hawn Medium Ed (3) Group and individual expression to convey thoughts and emotions through various media including music, fine arts, dance, multimedia technology and communications, and physical education. Understanding and appreciation of such expressions and their integration in Hawaiian tradition. Conducted in Hawaiian. Pre: Permission from College.

KED 630 Res Meth in Indigenous Lang (3) Seminar in which students explore and choose a thesis topic or applied project topic.

KED 641 Hawaiian Medium Field Exp I (9) Practical experience and application of teaching methods and strategies in content areas in Hawaiian medium schools. Must be taken CR/NC. Conducted in Hawaiian. Pre: KED 620, 621, 622, 623, 624; concurrent enrollment in KED 642 and permission from the College.

KED 642 Hawaiian Med Fld Exp I Seminar (3) Problems in application of theory in the delivery of instruction in Hawaiian medium classrooms. The interface between Hawaiian medium and English medium classrooms of an individual school. Must be taken CR/NC. Conducted in Hawaiian. Concurrent registration in KED 641 and permission from the College.

KED 643 Hawaiian Medium Fld Exp II (9) Supervised teaching in Hawaiian medium schools. Must be taken CR/NC. Conducted in Hawaiian. Pre: concurrent registration in KED 644 and permission from College.

KED 644 Hawaiian Med Fld Exp II Sem (3) Issues in the delivery, administration, and support of Hawaiian medium education. Must be taken CR/NC. Conducted in Hawaiian. Pre: concurrent registration in KED 643 and permission from the College.

KED 660 Indigenous Culture-based Educ (3) Understanding appropriate education of indigenous peoples, through a review of practices that have been described and theories that have emerged from a variety sources.

KED 661 Curr Dev Maui Ola-based Sch (3) Seminar in the development of an integrated curriculum from the earliest to the highest levels of Hawaiian language medium schooling, using international research and standards of excellence within a Hawaiian language and culture context and world view.

KED 662 Indigenous Well-being Thru Edu (3) Psychological and cultural perspectives of human development and well-being of indigenous peoples. Designed to promote, nurture, explore and understand the influence of culture on the indigenous person. Of special interest to educators in schools serving indigenous students regarding cultural understandings and change in a historical and contemporary context.

KED 693 Applied Rsrch in Indigenous Ed (3) Seminar in which students develop projects providing direct application to an aspect of indigenous language and culture education.

KED x94 Special Topics in Subject Matter (Arr.) (IO) Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

KED x99 Directed Studies (Arr.) (IO) Statement of planned reading or research required. Pre: instructor's consent.

KIND 601 Language Maintenance and Shift (3) Introduction to the study of social, historical, political, cultural and economic factors leading to language shift.

KIND 602 Meth/Resou Indig Lang Comm Blg (3) Detailed overview of the various challenges to language and culture revitalization and approaches to solving those challenges, including issues of leadership, goal setting prioritizing and resourcing.

KIND 690 Fld Stdy Indigenous Community (3) Off-campus field work experience in an indigenous language other than Hawaiian. Pre: Graduate status in Ka Haka `Ula O Ke`elikolani and permission of the instructor. See graduate program chair for overseas minority language study option as substitute for this course.

KIND 700 Master's Thesis Research (1-6) Research and writing of thesis. Pre: Permission of college and instructor.

KIND 730 Rsch Meth Hwn Ind Lang Culture (3) Seminar in which students explore and choose a dissertation topic.

KIND 800 Doctoral Dissertation Research (1-6) Research and writing of dissertation. Pre: Permission of college and instructor.

KIND x94 Special Topics in Subject Matter (Arr.) (IO) Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

KIND x99 Directed Studies (Arr.) (IO) Statement of planned reading or research required. Pre: instructor's consent.

Ke`elikōlani Indigenous Language (KLAN)

Ka Haka `Ula O Ke`elikōlani College of Hawaiian Language

KLAN 701 Semantic/Pragmatic Indig Lang (1) Seminar study of meaning and connotations as conveyed by the morphemes and vocabulary of a language, by its idioms and set metaphors and by other features. Focus on the indigenous languages being studied by the enrolled students.

KLAN 702 Stylistics/Domains Indig Lang (1) Seminar study of identity, levels of formality, and art as conveyed in languages. Informal peer group language to highly formal language. Highly traditional usages to the most contemporary of usages. Focus on the indigenous languages being studied by enrolled students.

KLAN 703 Semantics-Prag of Indig Langua (3) Meaning and connotations as conveyed in a specific indigenous language through morphemes and vocabulary, idioms and set metaphors, and through other features. Alpha varies according to the language, e.g. Hawaiian, Blackfoot, Rapanui. May be repeated if content is different. Pre: KLAN 701.

KLAN 704 Stylistics-Domain of Indig Lan (3) Identity, levels of formality and art as conveyed in a specific indigenous language from the informal peer group language to highly formal artistic usages and from very traditional rooted situations to the most contemporary of usages. Alpha varies according to the language, e.g., Hawaiian, Blackfeet, Rapanui. May be repeated if the content is different. Pre: KLAN 702.

KLAN x94 Special Topics in Subject Matter (Arr.) (IO) Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

KLAN x99 Directed Studies (Arr.) (IO) Statement of planned reading or research required. Pre: instructor's consent.

Nursing (NURS)

College of Arts and Sciences, School of Nursing

NURS 501 Social Aspects of Health (3) Examination of the complex interactions among the physical and social environment, health status, education, culture, and human capital in urban and rural communities. A multidisciplinary focus on the quality of life as the outcome of micro and macro-determinants and consequences of health that operate at the

individual, family, neighborhood, community, nation, and global levels of sociopolitical and community organization. Pre: Admission to the DNP program or instructor's consent.

NURS 502 Information Systems/Technology (3) Overview of resources of the emerging health information age. The course will focus on 1) the theory and conceptual base for healthcare information systems and technology, 2) design selection, and application of current and developing health information technology applications and 3) approaches to evaluate the effectiveness of health information systems used in patient care and education. Pre: Admission to the DNP program or instructor's consent.

NURS 503 Advanced Clinical Pharmacology (3) Focus on the pharmacotherapeutic principles of drugs most commonly used by advanced practice nurses. Emphasis on the process of selecting appropriate agents for therapy, and monitoring adverse drug reactions or interactions with prescription, over-the-counter, and alternative therapies. Emphasis on integration of pharmacy, physiology, and physical assessment in developing evidence-based primary clinical management skills for patients across the lifespan with regard to their medication use. Foundations of prescriptive authority will be addressed. Pre: Admission to the DNP program or instructor's consent.

NURS 504 Advanced Clin Pathophysiology (3) Introduction to the use of pathophysiology of body systems to support clinical decision making of the advanced practice nurse in management of common acute and chronic diseases of children, adults, and older adults. Overview of the mechanism(s) underlying disease clinical manifestations so that rational therapies can be devised. Appropriate screening and diagnostic laboratory evaluative methods will be included. Examination of interrelated effects of genes, environment, and lifestyle on patterns of disease in populations. Pre: Admission to the DNP program or instructor's consent.

NURS 505 Advanced Health Assessment (4) (lec., lab) Focuses on the theoretical and clinical basis for assessment in advanced practice nursing. Demonstration of the process utilizing comprehensive physical, psychosocial, and cultural assessment across the lifespan, to gather specific data relevant to common health problems, and systematically determine differential diagnoses. Faculty and preceptors facilitate laboratory and clinical experiences in a variety of settings. Pre: Admission to the DNP program or instructor's consent.

NURS 506 Rural Health Promotion (3) Focus on the promotion of responsiveness of organizational health services to health needs of individuals and families in rural communities. Analysis of the impact of political, ecological, economic and cultural factors on community health in rural areas. Utilization of evidence-based process and collaborative leadership in designing structure of health promotion services to address rural community needs. Pre: Admission to the DNP program or instructor's consent. Co-req: NURS 506L.

NURS 506L Rural Health Promotion Lab (3) Supervised advanced practice practicum focusing on health promotion and clinical management of the health concerns of adult clients as commonly encountered in diverse and rural primary care settings. Emphasis on culturally-appropriate evidence-based practice, consultation, research, and evaluation. 3 semester hours supervised practicum (135 clock hours). Pre: Admission to the DNP program. NURS 500-505. Co-req: NURS 506.

NURS 507 Primary Care of Adults (3) Course focus is primary care of adults with focus on health promotion, disease prevention and management of common acute, episodic and chronic health problems. Transcultural and biobehavioral assessments used in diagnosis and evidence-based management of health problems, education, and evaluation of care for the adult client in primary settings. Pre: Admission to the DNP program. Co-req: NURS 507L, 508 and 508L.

NURS 507L Primary Care of Adults I (3) Supervised advanced practice practicum focusing on health promotion and clinical management of the health concerns of adult clients as commonly encountered in diverse and rural primary care settings. Emphasis on culturally-appropriate evidence-based practice, consultation, research, and evaluation. 3 semester hours supervised practicum (135 clock hours). Pre: Admission to the DNP program. Co-req: NURS 507, 508 and 508L.

NURS 508 Primary Care of Older Adults (3) Building on the management of acute and chronic illness of the adult, this course emphasizes special needs of the older adult. The focus on quality of life will be supported utilizing theories of aging, management of complex chronic health problems, polypharmacy, dementia, and frailty. Evidence-based management plans incorporating transcultural and functional assessment are used to address issues of self-care, family care giving, surrogate decision making, and end of life care. Pre: Admission to the DNP program. NURS 501-505, 506, 506L, and 518. Co-req: NURS 50, 507L, and 508L.

NURS 508L Primary Care Older Adults Lab (3) Supervised advanced practice practicum focusing on health promotion and clinical management of the health concerns of older adult clients as commonly encountered in diverse and rural primary care settings. Emphasis on culturally-appropriate evidence-based practice, consultation, research, and evaluation. 3 semester hours supervised practicum (135 clock hours). Pre: Admission to the DNP program. NURS 501-505, 506, 506L, 518. Co-req: NURS 507, 507L, and 508.

NURS 509 Primary Care of Women (2) Didactic course focusing on the provision of comprehensive and culturally competent primary care to women. Emphasis on evidence-based health assessment, diagnosis, health education, health promotion, disease prevention, perinatal care, clinical management and evaluation of common gynecologic and obstetric primary health care needs of women as commonly encountered in diverse and rural settings. Pre: Admission to the DNP program. NURS 500-505, 506, 506L, 507, 507L, 508, 508L. Co-req: NURS 509L, 510 and 510L.

NURS 509L Primary Care of Women I (2) Supervised advanced practice practicum focusing on health and wellness, perinatal care, gynecologic aspects of care and occupational health concerns of women. Management of acute and episodic illnesses and chronic illness of the gynecologic and obstetric of women commonly encountered in primary settings. Emphasis on culturally appropriate evidence-based practice, consultation, collaboration, referral, education, research, and evaluation. 2 semester practicum (90 clock hours). Pre: NURS 501-505, NURS 506, 506L, 507, 507L, 508, 508L, and 518. Co-req: NURS 509, 510 and 510L.

NURS 510 Primary Care of Children (2) Didactic course focusing on the provision of comprehensive and culturally competent primary care to children. Emphasis on evidence-based health and development assessment, diagnosis, and health education, health promotion, disease prevention and the clinical management, and evaluation of health problems of infants, children, and adolescents as commonly encountered in diverse primary care settings. Pre: 507, 507L, 508, 508L, and 518. Co-req: NURS 509, 509L, Admission to the DNP program. NURS 501-504, 506, 506L, and 510L.

NURS 510L Primary Care of Children Lab (2) (lab) Supervised advanced practice practicum focusing on health conditions of infants, children, and adolescents. Emphasis on evidence-based health and developmental assessment, diagnosis, and health education, health promotion, disease prevention and the clinical management and evaluation of health problems commonly encountered in diverse and rural primary care settings. 2 semester practicum (90 clock hours). Pre: admission to the DNP Program. NURS 501-505, 506, 506L, 507, 507L, 508, 508L, and 518. Coreq: NURS 509, 509L, and 510.

NURS 511 Advanced Research Methods (3) This course focuses on the systematic examination and application of the qualitative, quantitative, and outcomes processes used in nursing research. The interrelationships among research theory, research ethics, and evidence-based nursing practice are explored. Uses of culturally appropriate research database tools consistent with specific patients or populations are included. Pre: Admission to the DNP program or instructor's consent.

NURS 512 Evidence Based Practice (3) Focus on culturally appropriate evidence-based practice (EBP) used to produce best outcomes for diverse populations. Steps of the EBP process, implementation and evaluation of EBP, practical strategies, and information systems approaches are explored. Proposal development and writing for the final project to answer questions with specific clinical and culturally diverse populations are included. Pre: Admission to the DNP program or instructor's consent.

NURS 513 Program Develop/Evaluation (3) This course builds on a completed evidence-based knowledge synthesis for a specific culturally diverse target population/practice, students will identify and propose appropriate strategies for organizational/ practice program development and evaluation. Students develop an innovative policy action plan for a population of interest based on an understanding of the cultural, financial, legal, and human resources needs of the health care environment. Pre: Admission to the DNP program or instructor's consent.

NURS 514 System-Based Leadership (3) Examination of leadership and management concepts used to address complex microsystem and macrosystem issues within selected healthcare organizations. Focus on the interrelationship of selected roles within the context of specific theoretical frameworks and models of care. Based on these theories and models, the student will derive the DNP's role in complex health organizations. Emphasis is on the application of advanced communication skills in collaboration with interprofessional teams. Pre: Admission to the DNP program or instructor's consent.

NURS 515 Health Policy: Local to Global (4) (lec., lab) Exploration and analysis of health policy from the perspective of evidence development, analysis, and socio-economic impact within a socio-political context. The leadership role of the DNP in developing and implementing health policy is examined. Discussion of social justice and equity in access and delivery of health care services. Opportunities are provided to participate in the political processes impacting nursing and health care policy. Includes cognate residency (90 clock hours). Pre: Admission to the DNP program or instructor's consent.

NURS 516 Health Economics (3) Exploration of basic economic theory, market drivers and restraints, and cost/benefit analysis, and reimbursement. Theory and application are integrated with a focus on the role of the DNP in complex healthcare organizations, the delivery of healthcare in rural settings, and the DNP as entrepreneur. Issues of equity, fairness, ethics, and efficiency in health care resource allocation and management are explored. Pre: Admission to the DNP program or instructor's consent.

NURS 517 Practice Inquiry/Project (6) Emphasis on the synthesis, critique, and application of evidence to support quality clinical or organizational practices in complex health care organizations. Students will implement an evidence-based clinical study or project on a topic of practice interest targeting a culturally diverse and vulnerable population, present and oral presentation and submit a scholarly paper of the study or project. Includes a cognate inquiry/project residency. Pre: Admission to the DNP program. NURS 500-505 and 511-515.

NURS 518 Epi/Environmental Health (3) Exploration of concepts and quantitative techniques used in modern epidemiology, as well as the health effects associated with selected environmental exposures of the general population. The course emphasizes the analytical studies, quantitative measures of association, and critical readings of current literature. The approaches of epidemiology in estimating the burden of disease, and in evaluating primary, secondary and tertiary prevention strategies are presented. Pre: Admission to the DNP program or instructor's consent.

NURS x94 Special Topics in Subject Matter (Arr.) (IO) Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

NURS x99 Directed Studies (Arr.) (IO) Statement of planned reading or research required. Pre: instructor's consent.

Pharmacy Practice (PHPP)

College of Pharmacy

PHPP 501 Intr Pharm Prac Experiential I (1) First year pharmacy students will spend a semester in either the retail pharmacy setting or hospital pharmacy setting to observe pharmacy practice. Graded: P/NP.

PHPP 502 Int Pharm Prac Experiential II (1) The second course in the IPPE sequence will build on the skills and the knowledge of PHPP 501 to develop pharmaceutical care practice. Graded: P/NP.

PHPP 503 Intr Pharm Prac Experien III (1) Second year students will begin to develop their patient interview, chart gathering and case development and presentation skills. Students will spend one semester in community health care clinics and one semester in a long term care facility. Students will present actual patient care cases in a seminar format throughout the semester. Graded: P/NP.

PHPP 504 Intr Pharm Prac Experien IV (1) Second year pharmacy students will begin to develop patient interview, chart gathering and case development and presentation skills. Students will spend the semester either in a community health care clinic or in a long term care facility. Student will present actual patient care cases in a seminar format throughout the semester. Graded P/NP.

PHPP 505 Intr Pharm Prac Experiential V (2) This course is a continuation of PHPP 501, 502, 503, and 504.

PHPP 507 Adv Pharm Prac Exp: Ambul Care (5) This six week rotation focuses on pharmaceutical care in the ambulatory care environment where students will interface with their pharmacist preceptor, physicians, nurses and other health professional to provide services to ambulatory care patients. Some examples of ambulatory care practices will include hypertension clinics, anti-coagulation clinics, hyperlipidemia clinic, medication therapy management (MTM) services and disease state management.

PHPP 508 Intro to Biostatistics (3) This course serves as the structural framework for a career that relies heavily on the ability to understand, evaluate and communicate medical information. The student will learn basic statistical and epidemiologic skills critical for the evaluation of medical literature and for conceptualizing what constitutes truly evidence-based medicine.

PHPP 509 Adv Pharm Pract Exp: Medicine (5) This six week rotation will place students in a hospital or other acute care facility to learn about pharmaceutical care in an inpatient environment. Students will work closely with physicians and clinical pharmacists to provide services to acutely ill patients and provide clinical pharmacy services. Students may round with medical teams or be partnered with other physicians to learn more about the interface between medicine and pharmacy.

PHPP 511 Culture & Inter-Prof Hlth Care (2) The concept of health care teamwork is not new but also not well-understood. The purpose of this course is to provide a framework for optimizing teamwork in health care. Examples of how team conflicts can be minimized or avoided will be discussed. In addition, the impact of culture on pharmaceutical care and teamwork will also be discussed, stressing the importance of recognizing potential differences between individuals.

PHPP 514 Evidence-Based Medicine (3) In this course, students will learn about research methods and biostatistics necessary for the critical evaluation of medical literature. Students will be exposed to descriptive statistics, inferential statistics, probability, Type I and Type II errors, bias and confounding, sample size and statistical power, absolute and relative risk, intention-to-treat analyses, number needed to treat and confidence intervals. Students will learn how to critically evaluate medical literature and recognize errors in study design or statistical methodology and determine the internal and external validity of published research trials. Pre: PHPP 508 (Biostatistics).

PHPP 515 Integrated Therapeutics I (7) This is the first course in a sequence of four courses. Pathophysiology, medicinal chemistry, pharmacology and therapeutics will be integrated into one discipline in this course that will examine pharmacotherapy based on organ systems of the body. Students will learn to blend their factual knowledge of basic sciences and apply this knowledge to drug treatment of specific disorders in disparate patients. Beginning in this course the pharmacotherapy of all major diseases states covered by organ system.

PHPP 516 Integrated Therapeutics II (7) Continuation of the medicinal chemistry, pharmacology, pathophysiology and therapeutic use of drugs which was started in Integrated Therapeutics I. An integrated approach to the following topics will be covered: gastrointestinal, genitourinary, endocrine, renal, and pulmonary diseases.

PHPP 517 Integrated Therapeutics III (7) Continuation of pharmacotherapy of disease states by organ systems which was started in PHPP

515, Integrated Therapeutics I, and continues in PHPP 516, Integrated Therapeutics II. An integrated approach to the following topics will be covered: disease states associated with the endocrine and central nervous systems.

PHPP 518 Integrated Therapeutics IV (7) This course is a continuation of PHPP 515, 516, and 517. It will cover the topics of infectious disease and oncology in an integrated fashion.

PHPP 519 Healthcare Systems (1) The American healthcare payment system is comprised of a variety of payers and participants. Payers for healthcare services are private insurers, employer groups, Medicare and Medicaid. Other participants in the system are hospitals, government hospitals such as the VA system, staff model HMO's, and individual/corporate healthcare providers. This course will examine the unique role of each participant as well as the current dynamics of these inter-relationships, and the sustainability of such a system in the current financial/healthcare crisis.

PHPP 520 Pharmacy Law and Ethics (3) The evolution of the practice of pharmacy has led to pharmacists facing an overwhelming number of legal issues. In addition to the standard coverage of the FD&C Act, the Controlled Substances Act and regulations of the Federal Trade Commission, this course will help student understand legal issues such as HIPAA privacy issues in the pharmacy, electronic prescribing, medication error reporting, professional liability insurance and Medicaid/Medicare issues. Current and past cases in the law will be used as practical examples of these concepts. In addition, students will participate in discussions and debates of ethical issues facing pharmacists in today's health care environment.

PHPP 521 Applied Pharmaceutical Care (3) This course will consist of workshop and case presentations to incorporate physical assessment skills and multi-disease state cases. Students will work in large and small sized groups to review patient cases and present in the SOAP format. This course will be the capstone course for the Pharmacy Practice curriculum before the Advanced Pharmacy Experiential rotations and will emphasize critical thinking and evaluation for multi-disease state patient cases as well as patient education.

PHPP 522 Pharm Practice Mgmt & Mktng (3) Regardless of the practice setting, pharmacists are called upon to be managers of people, finances and business. Most of the didactic education focuses on the basic sciences and clinical practice. The goal of this course is to teach students management principles and skills universal to all management scenarios. Students will practice skills necessary for time management organization, business planning, operations management, people management, and quality control. The course section on finance will include financial statements and analysis budgeting, 3rd party payer considerations, inventory management and labor costs. Discussion of marketing theory and application will be included.

PHPP 523 Wellness & Disease Prevention (2) This course provides students with an overview of what constitutes a healthy lifestyle and how it contributes to the prevention of chronic disease. Pharmacists are key providers in helping to educate patients about wellness and disease prevention. Disease State Management (DSM) is an organized, coordinated process to manage specific disease states over the entire course of the disease to improve clinical and economic outcomes for the patient. Students will be exposed to important DSM models such as the Asheville Project in North Carolina and utilize this information in creating a disease management program.

PHPP 524 Pharmacoeconomics (3) This course introduces pharmacy students to the basic concepts, terminology, and applications of pharmacoeconomics and its usefulness in making informed decision in health care. Students will learn types of outcome evaluation and outcome measures, the appropriate uses and applicability of cost-of-illness, cost-minimization, cost-effectiveness, cost-benefits, cost-utility, and decision analyses. Evaluation of the humanistic outcomes associated with drug therapy and the provision of pharmaceutical care on quality of life including the utilization of sensitivity analyses, decision analysis models, and discounting will also be reviewed. Emphasis is placed upon the reading, interpretation, and critical evaluation of different types of published pharmacoeconomic studies in the medical literature. The goal

of this course is to nurture the student an appreciation for the role of pharmacoeconomics in health care.

PHPP 525 Complementary Medicine (3) This course is designed as an overview of complementary medicine. Students will be presented a balanced unbiased view of the theory and practice of some of the more popular complementary therapies such as acupuncture, traditional Chinese medicine, homeopathy, herbal medicine, and other dietary supplements.

PHPP 540 Adv Pharm Prac Exp: Ambulatory (6) This six week rotation focuses on pharmaceutical care in the ambulatory care environment where students will interface with their pharmacist preceptor, physicians, nurses and other health professional to provide services to ambulatory care patients. Some examples of ambulatory care practices will include hypertension clinics, anticoagulation clinics, hyperlipidemia clinic, medication therapy management (MTM) services and disease state management.

PHPP 541 Adv Pharm Prac Exp: Community (6) This six week rotation focuses on pharmaceutical care in the community pharmacy setting where students will work with pharmacy preceptors to learn about dispensing techniques, pharmacy databases, community pharmacy management, patient counseling, over the counter (OTC) medications, medication therapy management (MTM), and disease state management.

PHPP 542 Adv Pharm Prac Exp: Medicine (6) This six week rotation will place students in a hospital or other acute care facility to learn about pharmaceutical care in an inpatient environment. Students will work closely with physicians and clinical pharmacists to provide services to acutely ill patients and provide clinical pharmacy services. Students may round with medical teams or be partnered with other physicians to learn more about the interface between medicine and pharmacy.

PHPP 543 Adv Pharm Pract Exp: Hospital (6) Six week rotation will place students in a hospital pharmacy where they will learn about unit dose systems, automated dispensing units, parenteral drugs, intravenous mixture systems, sterile produce preparation, hospital pharmacy computer systems, physician order entry, crash cart systems and DRG/ICD-9 systems used in tracking patient diagnoses and reimbursement for services.

PHPP 544 Adv Pharm Pract Exp: Elect I (6) Six-week rotation will place students in the many different areas of pharmacy practice including: adult medicine, pediatrics, geriatrics, infectious disease, critical care, oncology, cardiology, psychiatry, ambulatory care, community practice, drug information, pharmacy compounding, home health care, clinical or basic sciences, research and pharmacy administration.

PHPP 545 Adv Pharm Prac Exp: Elect II (6) This six week rotation will place students where they may spend time in the many different areas of pharmacy practice including: adult medicine, pediatrics, geriatrics, infectious disease, critical care, oncology, psychiatry, ambulatory care, community practice, drug information, pharmacy compounding, home health care, clinical or basic sciences research, and pharmacy administration.

PHPP 550 History of Pharmacy (2) This elective is of value to appreciate the origin of pharmacy and the manner in which ancestors of the field practiced their art. These historical aspects will be discussed as well as techniques, tools, symbols, and art in pharmacy.

PHPP 553 Current Topics in Healthcare (1) Healthcare is no longer defined as a patient seeking the service of a provider. Healthcare inflation is exacerbated by the cost of government programs such as Medicare, unemployment, fraud, defensive medicine and changing technology in healthcare. Pending healthcare reform promises to change some of the healthcare delivery system as we know it today. This course will focus on the healthcare issues facing providers of healthcare with a focus on pharmacy, payers of healthcare, and users of the healthcare delivery system. Current events will be the basis of topics for discussion. Pre: PHPP 519.

PHPP 554 Zoonotic Diseases (1) This course is designed to introduce students to the definition, history, origin and transmission of zoonoses; commonly encountered zoonotic diseases as well as those commonly encountered in Hawaii. Covered are bacterial, tick-borne bacterial, fun-

gal, parasitic, viral and prion zoonoses. Emphasis will be made on those that are life-threatening to humans, for example, leptospirosis, rabies, transmissible spongiform encephalopathies, etc. Pre: acceptance and second year standing in the College of Pharmacy.

PHPP 555 Intro to Veterinary Medicine (1) This course is designed to introduce students to the profession of veterinary medicine and how it is dependent on pharmacology. Lectures include veterinary medical education; and practicing small animal medicine, large animal medicine (equine and food animal), and exotic animal medicine, inclusive of the daily challenges encountered in practicing medicine. Introductions to diseases, whether infectious or non-infectious, of various etiologies will be made. The realms of veterinary medicine, for example, diagnostic tools (physical examination, imaging, clinical pathology, etc.), treatment options (medicinal, surgical, physical therapy, conservative, etc.) and career opportunities will be emphasized. Pre: Acceptance and second year standing in College of Pharmacy.

PHPP 556 Adv Topics in Hypertension (1) High blood pressure affects over 70 million people in the United States today. This disease carries significant morbidity and mortality which will only increase with our aging population. The treatment of hypertension is highly complex and frequently changes based on new clinical evidence. Students will discuss in depth the diagnosis and various treatments (both pharmacologic and non-pharmacologic) of hypertension. Pre: PHPP 515.

PHPP 557 Personal Finance (1) This course will provide an introduction to the basic principles and skills of personal financial management, including saving, borrowing, insurance, investment, and budgeting. Special emphasis will be given to the issues most relevant to new pharmacists, such as student loan repayment, financial implications of career mobility, and retirement options based on type of healthcare employer.

PHPP 559 Spanish for Healthcare Profess (1) This course provides a unique opportunity in developing culturally aware clinical language skills for the Spanish speaking patient population, optimizing all aspects of medication therapy management for this patient population. Pre: Second year standing in College of Pharmacy

PHPP 564 Advanced Managed Health Care (1) This course will provide an introduction to the basic principles and alphabet soup of managed healthcare, to include MCO's, PBM's, PPO's, HMO's, CDH, VA, and DoD. We will present and discuss topics of particular interest to the future of Pharmacy management including Pay-for Performance, Medicare, and Medicaid along with a discussion on the Obama Health Care Reform. Special emphasis will be given to providing students a better understanding of the financial drivers of healthcare management within each segment. A discussion of taxonomy and functional differences between managed health care segments provide the framework for the operational differences. Pre: Acceptance in the College of Pharmacy and second or third year standing.

PHPP x94 Special Topics in Subject Matter (Arr.) (IO) Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

PHPP x99 Directed Studies (Arr.) (IO) Statement of planned reading or research required. Pre: instructor's consent.

Pharmaceutical Science (PHPS)

College of Pharmacy

PHPS 501 Biochemistry - Biomolecules (3) The course will lay the biochemical foundation for the understanding of medicinal chemistry, pharmaceuticals, pharmacology and pathophysiology. The course will cover protein, DNA, and RNA function, in addition to their regulation and repair. The ultimate goal of this course is to present principles critical for understanding the biochemical basis for disease states and drug action.

PHPS 502 Biochemistry - Metabolism (3) "Biochemistry - Metabolism" will delve into metabolism and the interrelationships of metabolic processes. The biochemistry of metabolism focuses on glycolysis, the tricarboxylic acid cycle, the electron transport chain and oxidative phosphorylation, gluconeogenesis, and the synthesis and breakdown of

biomolecules (carbohydrates, lipids, and amino acids). Metabolic control and regulation of pathways will be emphasized, including a discussion on the fundamentals of signal transduction in relation to hormone action. Clinical correlates and metabolic diseases will be examined.

PHPS 503 Pharmaceutical Calculations (2) In this course, students will learn the fundamentals of pharmaceutical calculations, including use of the SI system of units, methods of measurement and expressions of concentration. In addition they will learn what constitutes an accurate, understandable and legal prescription or medication order. Through a series of lectures and exercises based on intensive problem solving, students will learn to perform the calculations required for the preparation of a range of pharmaceutical dosage forms as well as for their proper administration to the patient. Emphasis will be placed on accuracy and prevention of medication errors.

PHPS 504 Pharmaceutical Immunology (3) Basic concepts of immunology, including innate immunity, antigen recognition, lymphocyte development and adaptive immunity will lay the groundwork for understanding immunity in a clinical context. Students will learn the role of the immune system in allergy, auto-immune disease, graft rejection and tumor immunogenicity. Methods of manipulating the immune system pharmacologically will be discussed as well as biotechnology applications.

PHPS 505 Pharmaceutics I (3) (lec., lab) Students will be introduced to issues, theory, and practice involved in the rational choice of drugs, dosage forms, and drug delivery systems, and the legal and professional issues in drug compounding. Discussion of Good Manufacturing Practices and Good Compounding Practices will carry over into the lab portion of the class. Students will become comfortable with equipment, procedures, and records used in the compounding of various dosage forms, and will practice clinical dispensing skills vital to shaping a truly professional pharmacist.

PHPS 506 Pharmaceutics II (3) (lec., lab) Students will be introduced to issues, theory and practice, involved in the rational choice of drugs, dosage forms and drug delivery systems, and the legal and professional issues in drug compounding. Discussions of Good Manufacturing Practices and Good Compounding Practices will carry over into the lab portion of class. Students will become comfortable with equipment, procedures and records used in the compounding of applications.

PHPS 507 End of Int Therapeut/OTC drugs (3) This course serves as an introduction to the integrated therapeutics sequences of courses. The integrated therapeutics series is the core of the pharmacy curriculum. Material presented will emphasize topic areas that are foundational to the integrated therapeutics sequence of courses. Additionally, an in-depth review of over-the-counter medications will be presented.

PHPS 509 Pathophysiology (4) This course will begin with a review of basic physiological topics that are of special importance to pharmacy, e.g. the autonomic nervous and cardiovascular systems. Following this will be an introduction to the discipline of pathology.

PHPS 511 Pharmacokinetics (3) Students will learn about the time course a drug occupies in the human body. Topics to be covered include drug bioavailability, drug absorption, distribution, metabolism and elimination, pharmacokinetics of various dosage forms, routes of administration and drug effects over time. The effects of patient weight, gender and age on drug pharmacokinetics will be discussed along with the therapeutic variation that occurs with these patient parameters. Students will use pharmacokinetic calculations to be able to solve problems in clinical pharmacokinetics. Emphasis will be placed on using pharmacokinetic principles to decrease the risk of toxicity and improve therapeutic outcomes using a variety of commonly used medications.

PHPS 512 Intro to the Pharm Sciences (3) This course is designed to introduce first year pharmacy students to the areas included in Pharmaceutical Sciences. Areas that will be presented are Introduction to Pharmacology, Medicinal Chemistry and Pharmacognosy. This course will allow students to successfully transition into the integrated Therapeutics sequences of courses taught in years 2 and 3.

PHPS 550 Genetics in Medicine (2) This elective course will introduce the student to the basics of genetics and molecular mechanisms of

inheritance as they apply to the treatment of disease and to the response of patients to drug therapy. Students will learn how genetics may lead to new strategies in drug development and treatment, how genetics may be used to predict patient response to specific treatments, and how responses are mediated. Emphasis will be placed on clinical and research applications.

PHPS 551 Substances of Abuse/Addiction (2) This elective course will provide an in-depth review of the neuropharmacology of substances of abuse including stimulants, depressants, hallucinogens and anabolic steroids. Other types of addiction will be discussed including gambling addiction. Special emphasis will be given to basic pharmacokinetic and pharmacodynamic mechanisms as they relate to the effects of the individual substances of abuse. Current theories of addiction and tolerance will be discussed.

PHPS 552 Dietary Supplements (1) A wide range of products are used in the United States and other parts of the world as aids for better health rather than as therapeutics for the treatment of disease. These products range from vitamins and minerals to herbal supplements used for a variety of purposes. In this course, the rationale for the use of these products will be examined as well as their safety and efficacy.

PHPS 553 Radioactivity in Pharmacy (1) Radiopharmaceuticals are playing a more and more important role worldwide. Particularly, the development of radiolabeled compounds for in vivo biochemical imaging tools like PET (positron emission tomography) and SPECT (single photon emission computed tomography) increased considerably.

PHPS 554 Herb Med & Hawaiian Med Plants (1) This elective course will cover the most popular herbal medicines, their chemistry (natural products), information resources, part(s) of plant origin, use, efficacy, safety, and potential drug interactions. A small student-centered research project is assigned with approval by the chair of the department.

PHPS 555 Geographic (Tropical) Medicine (1) This elective course will cover: policy makers and public health experts who have emphasized the growing need for global health literacy and global health capacity among U. S. healthcare professionals. The Institute of Medicine defines global health as health problems, issues, and concerns that transcend national boundaries, may be influenced by circumstances or experiences in other countries, and are best addressed by cooperative actions and solutions.

PHPS 556 Drugs from Natural Sources (1) This elective course will discuss original drugs used by man for the treatment of himself and his animals were all of natural origin and in some parts of the world the natural environment still provides the majority, if not all, of medications used on a day to day basis for the treatment of common and not so common ailments. Today the natural world is still the source of over 50% of pharmaceuticals either as direct products, derivatives thereof, or as lead structures.

PHPS 558 Drug Development & Regulation (1) The mechanism by which drug products are developed and approved for use in a global market is an evolving process. Concepts of quality by design employed in other industries such as aerospace are being adapted for pharmaceuticals with the intense encouragement of major regulatory agencies.

PHPS 559 Environmental Toxicology (1) This elective is designed to introduce students to the field of environmental toxicology. This course will focus more on ecotoxicology, rather than classical toxicology, and include topics such as xenobiotics, toxic and radioactive metal, toxicity of solvents and pesticides, halogenated aromatic compounds, environmental endocrine disruptors, and pharmaceuticals and personal care products in the environment. Pre: Acceptance and second or third year standing in the College of Pharmacy.

PHPS 561 Emerging Trends Drug Discovery (1) The emphasis of the course is on the drug development process, focusing on the phases of target identification and validation. This elective is intended to reveal: a) how novel drug modalities will complement existing treatment options for various disease states; b) scientific basis for the selection of a particular target; c) the validation of target choice through experimental methods; and, d) methods to integrate a novel target into the drug development pipeline. Limited discussions may also be held on the special

topics such as common problems encountered in drug development, as well as the impact of intellectual property and reach-through patents in drug discovery efforts. Pre: concurrent enrollment in PHPP 518 and acceptance and third year standing in the College of Pharmacy.

PHPS 562 Disc & Dev of Blockbuster Drug (1) There is a critical point and an interesting story behind each pioneering breakthrough in medicine, when decisions were made as to whether to continue or terminate the development of a promising new drug. Throughout the lectures, the historical discovery and development of representative blockbuster drugs, which changed the world and saved millions of lives, will be discussed. Pre: Acceptance and second year standing in the College of Pharmacy.

PHPS 563 Curr Adv in Neuropharmacology (1) This elective is designed to cover the current literature and latest discoveries in neuropharmacology. Course topics are from a variety of areas and can have a clinical or basic science emphasis but must cover the most recent findings in that field. The effect of a drug on the brain is a paramount concern for pharmacists. The action of drugs on the nervous system is the science of neuropharmacology. It comprises several areas of investigation of critical importance to science and medicine. Neuropharmacology involves studies aimed at understanding the mechanism by which drugs alter brain function. These include medications used to treat a wide range of neurologic and psychiatric disorders as well as drugs of abuse. Neuropharmacology uses this information to develop new medications with ever-improving efficacy and safety for diseases of the nervous system. Neuropharmacologic agents are valuable tools with which to probe the molecular and cellular basis of nervous system functioning. Pre: Acceptance and third year standing in the College of Pharmacy.

PHPS 565 Genetics & Pharm of Malaria (1) This course will provide students with a better understanding of the role that genetic variation plays in disease susceptibility at both the individual and population levels. Genetic variation of human hosts and parasites will be covered with an emphasis on co-evolution. Drug action and mechanisms of drug resistance will be explored. The contemporary role of molecular genetic techniques in the detection of genetic variation, with applications toward vaccine development, will also be covered. Pre: Second year standing in the College of Pharmacy.

PHPS 566 Emerging Trends Drug Discovery (1) This 1 credit elective course is designed to enhance the student's knowledge of emerging drug targets and related efforts in the drug discovery and development process. The emphasis of the course is on the drug development process, focusing on the phases of target identification and validation. This elective is intended to reveal: a) how novel drug modalities will complement existing treatment options for various disease states; b) scientific basis for the selection of a particular target; c) the validation of target choice through experimental methods; and, d) methods to integrate a novel target into the drug development pipeline. Pre: Acceptance into the College of Pharmacy and concurrent registration in PHPP 518.

PHPS 567 Pharmacogenetics (1) This elective is designed to introduce students to the field of pharmacogenetics, the study of the genetic basis for variation in drug response. This course will discuss the development of pharmacogenetics, genetics and epigenetics within pharmacogenetics, age-related and ethnic factors in pharmacogenetics, some genomic tools used in pharmacogenetic research, cancer and HIV treatment and pharmacogenetics, and the future of pharmacogenetics research and discoveries. Pre: Acceptance and third year in the College of Pharmacy.

PHPS 591 Basic & Applied Toxicology (3) This course will provide a general foundation in the understanding of basic toxicological principles. The mechanisms of toxicity and contemporary treatment plans for the most common chemical, environmental and pharmaceutical agents are presented. Additionally this course will provide an in-depth review of the neuropharmacology of substances of abuse including stimulants, depressants, hallucinogens and anabolic steroids. Pre: Second year standing in the College of Pharmacy.

PHPS 601 Integrated Pharmacotherapy I (7) In this first of a series of three courses, pathophysiology, pharmacology, toxicology, and therapeutics will be integrated into one discipline that will examine pharmacotherapy based on organ systems of the body. The course will

begin with a discussion of SOAP notes and an introduction to pharmaceutical principles. Students will learn to blend their factual knowledge of the basic sciences and apply this knowledge to drug treatment of specific disorders in disparate patients. Synchronous video chats will tie in the pharmacotherapy discussed in lecture with the treatment of CNS disorders. On-site workshops will be occurring at various times during the semester. Pre: Acceptance into the program.

PHPS 602 Integrated Pharmacotherapy II (7) This course is the second of a series of three courses. This course will begin with a discussion of pharmacoepidemiology and resources to obtain drug information. The major focus of this course will be a detailed coverage of the pathophysiology, pharmacology, toxicology, and therapeutics of CNS disorders that require pharmacotherapy. Students will learn to blend their factual knowledge of the basic sciences and apply this knowledge to drug treatment in disparate patients. On-site workshops will be provided at various times during the semester. During the semester students will submit six SOAP notes covering patients with both somatic and CNS related disorders. Synchronous video chats will be employed to relate the pharmacotherapy of somatic disorders with treatment of CNS disorders. A research paper covering the current and future pharmacotherapy of a CNS related disease state selected by the student and approved by the Course Coordinator. The course will culminate with each student presenting their research paper. Pre: Acceptance into the Program.

PHPS 603 Integrated Pharmacotherapy III (4) The course will begin with an overview of Toxicology, then proceed to conclude the discussion of the pharmacotherapy based on organ systems of the body by integrating the pathophysiology, pharmacology, toxicology, and therapeutics. Students will learn to blend their factual knowledge of the basic sciences and apply this knowledge to drug treatment of specific disorders in disparate patients. Additional topics discussed will be professional, legal, ethical, and interprofessional issues that relate to ethics, standards of care, laws, and regulations relevant to the practice of psychology involving psychopharmacology. During the semester students will submit three SOAP notes covering patients with both somatic and CNS related disorders. The course will culminate with each student presenting their research paper. Pre: Acceptance in the Program.

PHPS 604 Adv Psychopharmacology I (2) This course serves as the first of two capstone courses that will provide an in-depth coverage of psychopharmacology associated with the treatment of mental disorders. Students will present patient cases in weekly seminars that are based on patients seen in clinical settings from the Psychopharmacology Practicum course taught concurrently. This course will require students to demonstrate competence in medication therapy management specific to psychopathology. In addition, recent literature will be discussed that covers synergistic interactions between psychotherapy and pharmacotherapy and will examine the single practitioner vs. the split-treatment model. Pre: Acceptance into the program. Co-req: PHPS 607.

PHPS 605 Adv Psychopharmacology II (2) Students will present patient cases in weekly seminars that are based on patients seen in clinical settings from the Psychopharmacology Practicum courses taught concurrently. This course will require students to demonstrate competence in medication therapy management specific to psychopathology. In addition, current and future pharmacotherapy of CNS disorders will be discussed: including methodology, standards and conduct of research of psychoactive substances. Drugs classes to be covered include: antipsychotics, antidepressants, mood stabilizers, anti-anxiety agents, sedative/hypnotic agents, narcotic analgesics, drugs used to treat the cognitive and behavioral effects of Alzheimer's disease, and drugs used to treat ADHD. Pre: Acceptance into the program, PHPS 604. Co-req: PHPS 607.

PHPS 606 Human Physiology (3) This course is designed to provide an in-depth overview of topics in human physiology that provide a basis for understanding of pharmacology. The course will begin with a review of basic physiological topics including the autonomic nervous, central nervous, and the cardiovascular systems. Following this will be an introduction to the discipline of pathology with an emphasis on diseases of the nervous system. This course will be composed of recorded lectures, live workshops, and synchronous video chat sessions. There is also a requirement of a research paper on a topic of physiology chosen by the

student with approval of the Course Coordinator. Pre: Acceptance into the program.

PHPS 607 Psychopharmacology Practicum (2) Students will participate in a psychopharmacology practicum for eight hours per week for at least one-year. The total amount of hours per year is at least 400 hours. They will be supervised by a qualified clinical practitioner with demonstrated skills and experience in clinical psychopharmacology in accordance with the prevailing jurisdictional law. Clinical supervision will be for one hour per week or one hour per eight hours of patient contact. Students will be actively involved in consultation with physicians and/or appropriately credentialed psychologists regarding prescribing of psychoactive medications. The Clinical Psychopharmacology Practicum components will be consistent with APA Recommendations. The Psychopharmacology Practicum courses will require students to demonstrate competence in medication therapy management specific to psychopathology. Students will present cases from this practicum in the Advanced Psychopharmacology I and II courses taught concurrently. At the end of the training program, a capstone competency evaluation will be completed. Students will need to arrange their own practicum according to the guidelines listed in the course syllabus. Pre: Acceptance into the program. Co-req: PHPS 604, 605.

PHPS 701 Apoptosis & Angiogenesis (1) The course will cover mechanisms of apoptosis, or programmed cell death, and angiogenesis, or new vessel growth, and mechanisms of their regulation in different cell types. Students will learn how unbalanced angiogenic and apoptotic responses contribute to a wide variety of disease conditions, including cancer, neurodegenerative, cardiac, inflammatory and autoimmune diseases. The course will discuss experimental techniques that are used in the studies of these processes. Part of the course is devoted to approaches to development of drugs that will modulate apoptotic and angiogenic processes, and discussions of critical signaling molecules in these pathways as potential targets for drug development efforts. Pre: Approval of Major Professor.

PHPS 702 Biol Eval of Natural Products (3) The biological activity of secondary metabolites is central to the process of drug discovery and development from nature. Natural products may be explored as potential sources of food supplements, pharmaceuticals and agrochemicals. The majority of academic-based research efforts are essentially "biologically driven", hinging upon the bioassay-guided separation of crude natural product extracts that have been identified as active through a strategic screening and prioritization process that emphasize potency, specificity and selectivity. The chemically-driven approach that seeks biological activities for purified compounds plays a lesser, but nevertheless, significant role. This course will introduce students to the technologies and procedures useful for the discovery and characterization of potential natural product drugs, and principles of more advanced drug development at the preclinical stage. Lectures will discuss the use of specific assays with target receptors and enzymes involved in the pathogenesis of select diseases, in addition to procedures involving tissues, whole cells and organisms ("functional assays"). Lectures will also include the applications of genetically engineered microorganisms in drug discovery, as well as animal models where applicable. The genomics era will present opportunities for the exploration of novel assays as new molecular targets for chemotherapy are identified. Pre: Approval of Major Professor.

PHPS 703 Cancer Biology (2) An introduction to cancer biology covering the processes involved in tumorigenesis (oncogenes, mutagenesis, proliferation, apoptosis, angiogenesis, invasion and metastasis). There will be discussion of active areas of interest such as cancer stem cells and the role of inflammation in cancer. Lectures will include descriptions of current therapeutics, describe efforts to design new drugs and recent clinical trials. Pre: Approval of Major Professor.

PHPS 704 Com Chem & High Throughput Tec (2) This course is designed to teach students the essential elements of combinatorial chemistry and evolving high throughput technologies in drug discovery. Combinatorial chemistry and high throughput chemistries are dynamic, rapidly evolving fields that have an important role in drug discovery. Most pharmaceutical companies have now incorporated combinatorial and high throughput platforms into their drug discovery research program. Combinatorial chemistry is a relatively new approach to the synthesis of

compound libraries in a highly efficient and automated fashion. The topics of this course will include, but not limited to, combinatorial chemistry and parallel synthesis; solid-phase organic synthesis; solution-phase synthesis with solid supported reagents and scavenger resin technology; diversity-oriented synthesis; dynamic combinatorial chemistry; high throughput screening of combinatorial libraries; microwave-assisted organic synthesis; fluororous technology, fragment-based drug discovery; and automation and instrumentation. Pre: Approval of Major Professor.

PHPS 705 Designing Clinical Research (3) The course introduces the science and methodological principles of undertaking clinical research. Emphasis is placed upon clinical trials of complementary and alternative medicine therapies. Topics include research question/problem/objective, research hypothesis, research processes, types of clinical research design, strengths and weaknesses of each design, measurements, concepts of reliability and validity, sampling designs, recruitment, sample size determinations, chance and bias, threats to the internal and external validity, monitoring safety and efficacy data, statistical tests and data management, ethical and regulatory considerations, translational research and funding agency. Students will be given the opportunity to identify a researchable idea/question and design his/her own clinical or translational research project by preparing a written mini-proposal and then its presentation. Pre: Approval of Major Professor.

PHPS 706 Environmental Toxicology (2) This course is designed to introduce students to the field of environmental toxicology. The emphasis will focus more on ecotoxicology, rather than classical toxicology. Topics that will be covered include toxic and radioactive metal, toxicity of solvents and pesticides, halogenated aromatic compounds, environmental endocrine disruptors, and pharmaceuticals and personal care products in the environment. The environmental impact of global warming will also be addressed. Course format will include student lead discussions and presentations, lectures, and general discussion. Pre: Approval of Major Professor.

PHPS 707 Genetics in Medicine (2) This course will provide an exposition of the fundamental principles of human and medical genetics with emphasis on the genes and molecular mechanisms operating in human diseases. The contributions made by genetic variation to disease susceptibility and treatment outcomes will be discussed. Clinical cases will be used to demonstrate and reinforce the general principles of disease inheritance, pathogenesis, diagnosis, management, and genetic counseling. Students will learn how understanding genetics can lead to new strategies in drug development and treatment. A combined laboratory and seminar experience will provide students with hands-on experience and keep students abreast of recent developments in the field by presenting current literature. Pre: Approval of Major Professor.

PHPS 708 Isolation Meth for Nat Pro Dsc (2) This course will examine the theory and practice of the various types of chromatographic and non-chromatographic methods that are commonly used for the isolation of biologically active natural products from plants, microorganisms and marine organisms on scales ranging from microgram to kilograms of pure compound. Starting with simple extraction methods, the course will progress through liquid-liquid interactions to liquid-solid interactions and then to gas-solid interactions. Completion of this course will provide the student an understanding of the application of each of the techniques discussed, as well as their relative advantages and disadvantages. Pre: Approval of Major Professor.

PHPS 709 Inst Meth & Struct Elucidation (2) This course will introduce many of the pieces of spectroscopic equipment relevant to solving the three dimensional structure of organic molecules. Hands on use of the equipment to obtain spectroscopic data will be an emphasis of this course. The other emphasis of this course will be how to interpret the recorded information to enable a viable chemical structure to be proposed. During each session it is anticipated that prepared examples and examples arising from current research will be used to enhance participants' knowledge. Pre: Approval of Major Professor.

PHPS 710 Lab Animal Care, Mgt & Med I (2) This course is part one of a two part lecture series and is designed to introduce students to the care and use of laboratory animals in accordance with the National Research Council and the Institutional Animal Care and Use Committee (IACUC).

Included in this course are alternatives to traditional use of live animal species and the laws, regulations and guidelines important to laboratory animal research. Emphasis will be placed on the use of rats and mice, rodent anesthesia and analgesia and rodent surgery. Pre: Approval of Major Professor.

PHPS 711 Lab Animal Care, Mgt & Med II (2) This course is part two of a two part lecture series and is designed to introduce students to the care and use of laboratory animals in accordance with the National Research Council and the Institutional Animal Care and Use Committee (IACUC). Included in this course is a review of Laboratory Animal Care, Management and Medicine I. Emphasis will be placed on rabbits, Mongolian gerbils, guinea pigs, Syrian hamsters, dogs and cats, and primates. Pre: Approval of Major Professor.

PHPS 712 Medical Cell Biology (2) This course focuses on the scientific aspects of cell biology important to graduate students with primary focus on eukaryotic cell biology. The course will provide a basis to general cell biology principles in the context of organ systems and human and animal disease. Clinical cases will be used to build a framework for the basic concepts of medical cell biology and help reinforce conceptual understanding. Pre: Approval of Major Professor.

PHPS 713 Organic Medicinal Chemistry I (2) Organic Medicinal Chemistry I provides the chemical and structural basis for the interdisciplinary field of therapeutics related to diuretics, autonomic nervous system and cardiovascular systems. The topics will include the drug discovery and development process of these important medicines, the chemical and structural basis for the pharmacological and therapeutic action drugs, structural classifications, molecular mechanism of actions, structure activity relationship and how the physicochemical properties of drug molecules affect their route of administration stability, and absorption, distribution, metabolism and excretion. Synthesis of important molecules from each drug class will also be presented. Pre: Approval of Major Professor.

PHPS 714 Organic Medicinal Chemistry II (2) Organic Medicinal Chemistry II provides the chemical and structural basis for interdisciplinary field of therapeutics related to diabetes, thyroid/pituitary disorders, hormones/ osteoporosis/adrenal, asthma/COPD, and infectious diseases. The topics will include the drug discovery and development process of these important medicines, the chemical and structural basis for the pharmacological and therapeutic action of drugs, structural classifications, molecular mechanism of actions, structure activity relationship, and how physicochemical properties of drug molecules affect their route of administration, stability, and absorption, distribution, metabolism and excretion. Synthesis of important drug molecules from each drug class will also be presented. Pre: PHPS 713.

PHPS 715 Organic Medicinal Chem III (2) Organic Medicinal Chemistry III provides the chemical and structural basis for interdisciplinary field of therapeutics related to antiviral agents, OARA/Gout, migraine, CNS agents including Parkinson/Alzheimer/Seizure. The topics will include the drug discovery development process of these important medicines, the chemical and structural basis for pharmacological and therapeutic action of drugs, structural classifications, molecular mechanisms of actions, structure activity relationship, and how the physicochemical properties of drug molecules affect their route of administration, stability, and absorption, distribution, metabolism and excretion. Synthesis of important drug molecules from each drug class will also be presented. Pre: PHPS 714.

PHPS 716 Organic Medicinal Chemistry IV (2) Organic Medicinal Chemistry I provides the chemical and structural basis for the interdisciplinary field of therapeutics related to gastro-intestinal/genito-urinary, chemotherapy, pain management, radiopharmaceuticals. The topics will include the drug discovery and development process of these important medicines, the chemical and structural basis for the pharmacological and therapeutic action of drugs, structural classifications, molecular mechanism of action structure activity relationship, and how the physicochemical properties of drug molecules affect their route of administration, stability, and absorption, distribution, metabolism and excretion. Synthesis of important drug molecules from each drug class will also be presented. Pre: PHPS 715.

PHPS 717 Med Chem CNS Drugs & Develop (2) The course will focus on modern aspects of the design and development of compounds for the treatment of central nervous system disorders, and in addition on the development of PET (positron emission tomography) and SPECT (single photon emission computed tomography) tracers to monitor functional processes in vivo in the human body. Important properties and steps for profiling a drug to enhance the access to the brain will be discussed. The course will start with an overview about CNS targets and pharmacophore models for diverse compound families and will provide synthetic aspects of important drug templates. The production of relevant radionuclides, precursor and radiochemical synthesis, quality control and radiopharmacological aspects (in vitro, ex vivo, in vivo experiments) will be discussed. Pre: Approval of Major Professor.

PHPS 719 Mol Biol Tech & Appl-Hlth Care (2) This course will provide students with basic and advanced information regarding DNA, RNA, and proteins, and describe current available techniques used in detecting genetic variation. Potential applications of these techniques to disease screening, drug resistance, and drug discovery and development will be reviewed. Isolation and purification of DNA samples from different cell types and tissues, DNA concentration techniques, restriction digestion and analysis, ligation of DNA to create recombinant molecules and designer genes will be discussed. Students will be provided with access to reference texts and selected online peer-reviewed articles in .pdf format by the instructor. The instructor will conduct lectures for sessions 1 and 15 and provide background materials. Each student will select a topic from the remaining sessions (2-14) and will lead the discussion for that selected topic on the assigned day. Students may work in pairs (or more if necessary), depending on student enrollment. Students will learn to retrieve information from a variety of sources, comprehend and critically evaluate it, and subsequently lead a discussion on the selected topic. There will be no laboratory component. Pre: Approval of Major Professor.

PHPS 720 Nat Prod & Cancer Chemoprevent (2) The course will concentrate on the molecular aspects of chemoprevention as a viable strategy in the fight against cancer. The treatment of many diseases is dependent on natural products. Over half of the currently approved anti-cancer and anti-infective drugs are of natural origin. Active leads from different structural classes such as alkaloids, flavonoids, coumarins, and phenazines will be described. Since carcinogenesis is a multistage process, different approaches to monitor inhibition of cancer initiation, promotion and progression will be characterized. The course will provide the student with an understanding of detailed aspects of research processes leading to the discovery of promising natural as well as synthetic and semi-synthetic chemopreventive compounds. Special attention will be given to ensure students are aware that the science of chemoprevention research is well established and offers great research opportunities. Pre: Approval of Major Professor.

PHPS 721 Neuropsychopharmacology (2) This course is designed as an intense, doctoral level class that amalgamates the disciplines of neuroscience, animal behavior, neurochemistry, and pharmacology. The course will cover the major topics of neuropharmacology such as cellular and molecular foundations of neuropsychopharmacology, behavioral pharmacology, receptor biology, major neurotransmitter systems and antidepressants, anxiolytics, antipsychotics, drugs of abuse, and cognitive and movement disorders. Further, this course will integrate some of the principle topics in behavioral neuroscience, including aggression, fear, stress, memory, internal state, and evolution of sex and mating systems, communication, feeding behavior, anti-predator behavior, and the evolution of behavior. Course format will consist of lectures and exams, student presentations, and require a capstone research review paper. Pre: Approval of Major Professor.

PHPS 722 Pharmaceutical Marketing (2) This course has two major areas of emphasis in pharmaceutical marketing. The first part of the course will introduce the basic theory of pharmaceutical marketing and creative thinking behind product development. Students will learn the basic principles of consumer behavior and evaluation, environmental framework, social, and various other marketing theories to provide an understanding of how these concepts can influence product development in laboratories or drug industries. This section will also integrate these principles

and concepts to understand issues related to the distribution and design of an innovative drug product development. The second part of the course is intended to use the principles and concepts learned in the first part to effectively develop a market plan for an innovative product. Pre: Approval of Major Professor.

PHPS 723 Pharmacognosy (2) Pharmacognosy is a highly interdisciplinary field which is one of five major areas of pharmaceutical education. Its scope includes the study of the physical, chemical, biochemical and biological properties of drugs, drug substances, or potential drugs or drug substances of natural origin as well as the search for new drugs from natural sources. This course will focus on chemical aspects of Pharmacognosy. Natural products are normally classified according to their biosynthetic origins and chemical properties. Thus, the objective of the course is to familiarize students with an introduction to and classification of natural products (terpenoids, alkaloids, phenylpropanoids and allied phenolic compounds). The basic metabolic pathways and the origin of secondary metabolites such as the shikimic acid pathways, the acetatemalonate pathway, the mevalonate pathways will be discussed. It is a core course of Pharmacognosy and enable students to use this knowledge in the future to explore Advanced Pharmacognosy. A special emphasis will be placed on how chemical structure affects physiological function of various natural products. Pre: Approval of Major Professor.

PHPS 724 Pharmacology I (3) In this 3 credit, 45 hour lecture course, students will learn pharmacology of specific drug groups. The course uses organ system approach. This course will begin with a discussion of diuretics followed by autonomic nervous system pharmacology and conclude with a discussion of drug groups used for the treatment of cardiovascular disorders. In the autonomic pharmacology unit, students will learn about adrenergic and cholinergic drugs that possess agonist and/or antagonist activities at different types and subtypes of receptors that are present in autonomic nervous system and other tissues in the body. Cardiovascular pharmacology will include drug groups that are used in the management of hypertension, hyperlipidemia, heart failure, disorders of coagulation, cardiac arrhythmias and ischemic heart disease. Pre: Approval of Major Professor.

PHPS 725 Pharmacology II (3) In this 3 credit, 45 hour lecture course, students will learn pharmacology of specific drug groups. The course uses organ system approach. This course will begin with a discussion of endocrine disorders pharmacology followed by pharmacology of asthma and chronic obstructive pulmonary disease (COPD), and conclude with a discussion of drug groups used for the treatment of infectious diseases. In the endocrine pharmacology unit, students will learn about drug groups that are used in the treatment of diabetes, thyroid and pituitary disorders, osteoporosis, as well as corticosteroid drugs. Respiratory pharmacology unit will include pathophysiology and pharmacology of drug groups that are used in the treatment of asthma and COPD. Infectious disease pharmacology unit will include discussions of antibacterial, antifungal, antiviral, antiprotozoal and antihelminthic drugs. Pre: Approval of Major Professor.

PHPS 726 Pharmacology III (3) This graduate-level course introduces the student to the basis of disease and pharmacology of drugs used to treat viral infections, osteoarthritis, rheumatoid arthritis, gout, and CNS disorders. Course material covers principles of drug action including drug-receptor interactions and mechanism of action, adverse effects, absorption, distribution, metabolism, elimination and pharmacogenomics. The focus of CNS lectures include therapeutics used to treat migraine, schizophrenia, depression, bipolar disorder, attention deficit hyperactivity disorder, sleep disorders, anesthesia, and neurodegenerative diseases. Students will be assigned a scientific article to read in advance of "Special Topics" lectures. For five of these assignments, the student will also be required to write a one-page summary of the article and its main findings. Pre: PHPS 725.

PHPS 727 Pharmacology IV (3) This graduate-level course introduces the student to the basis of disease and pharmacology of drugs used to treat gastrointestinal and genitourinary disorders, fertility and contraception, as well as cancer and pain management. Course material covers principles of drug action including drug-receptor interactions and mechanism of action, adverse effects, absorption, distribution, metabolism, elimination and pharmacogenomics. Students will be assigned a

scientific article to read in advance of "Special Topics" lectures. For five of these assignments, the student will also be required to write a one-page summary of the article and its main findings. Pre: PHPS 726.

PHPS 728 Phytochem - Terrestrial Plants (2) This course will survey the chemical structures, spectroscopic properties, biosynthesis/biogenesis and biological activities of a wide range of major and minor chemical classes occurring in terrestrial plants. These compound classes will include alkaloids, terpenoids, steroids, coumarins, flavonoids, tannins and other polyphenols, pyrones, quinones, phenylpropanoids, lignans, depsides, depsidones, fats, waxes and lipids among others. Completion of this course will provide the student with a basic familiarity with the kinds of chemical structures found in plants enabling her/him to embark on a career in phytochemical research. Pre: Approval of Major Professor.

PHPS 729 Receptor Theory & Signal Trans (2) This course is designed to provide the student with knowledge of the historical and practical aspects of receptor theory as it applies to drug action, and to introduce how drug actions are mediated through signal transduction cascades, based on specific examples. Lecture topics include: models for receptor-drug interactions; methods for receptor identification; structure-function analysis of GTP-binding proteins and ligand-operated ion channels; receptor tyrosine kinases; nuclear receptors; and receptor-induced signal transduction cascades. Laboratory component of the course is designed to complement lecture topics. Pre: Approval of Major Professor.

PHPS 730 Sample Coll, Documnt & Presrv (1) Participants in this course will learn strategies for sample collection from both the terrestrial and marine environments and for both macro- and micro-organisms. The course will cover permit application, sample collection, and the various ways in which different sample types are preserved for long term storage and how taxonomic voucher specimens are prepared. Pre: Approval of Major Professor.

PHPS 731 Toxicants and Toxicity (3) This course will provide a general foundation in the understanding of basic toxicological principles. The mechanisms of toxicity and contemporary treatment plans for the most common chemical, environmental and pharmaceutical agents will be presented. Additionally, this course will provide an in-depth review of the neuropharmacology of substances of abuse including stimulants, depressants, hallucinogens and anabolic steroids. Other types of addiction will be discussed. Special emphasis will be given to basic pharmacokinetic and pharmacodynamic mechanisms as they relate to the effects of the individual substances of abuse. Current theories of addiction and tolerance development will be discussed. Pre: Approval of Major Professor.

PHPS 732 Tox Plant Nat Prod-Therap Pot (2) This course will draw on the basic principles of organic chemistry and biology to provide an understanding of the biosynthesis of toxic natural products in plants, their bioassay-directed fractionation and isolation, structural identification, and mode of action in mammalian systems. Toxins discussed will be those responsible for hepatotoxicity, teratogenicity, cardiotoxicity, lysosomal storage diseases, and reproductive defects. Students will integrate these principles to understand the importance of dose in discriminating between toxicity and therapeutic action, as well as the role of natural products as lead compounds in drug development. The major classes of toxic compounds occurring in plants will be discussed, with particular reference to those occurring in Hawaii. Discussions of proper experimental design, plant sampling and identification, and structural classification will carry over into the laboratory portion of the class. Students will become familiar with procedures for plant collection, extraction and isolation of pure compounds, and structural identification. Pre: Approval of Major Professor.

PHPS 750 Overview of Pharm Sciences (3) This 3 credit, 45 lecture and written research assignment course will draw on the basic principles of chemistry, biology and physics to provide an introduction to the basics of the Pharmaceutical Sciences. Some of, but not all, the areas covered include: an overview of the subject as a whole, basic organic functional group chemistry, an introduction to Pharmacognosy, and introduction to Medicinal Chemistry, Combinatorial Chemistry and high throughput technologies in modern drug discovery, architecture of drugs, metabolic changes that occur to drugs, introduction to general Pharmacology, transport of drugs across the biological membranes, introduction to

Pharmacodynamics and Pharmacogenomics, general mechanisms of drug action, and variations in drug action. Pre: Enrollment in the College of Pharmacy PhD program.

PHPS 751 Biochemistry I - Biomolecules (4) This course is designed to provide a basic foundation for the understanding of medicinal biochemistry, pharmacology, and the structure and function of various biomolecules. Topics will include physical and chemical properties of amino acids, structural and physical properties of proteins, nucleic acids (DNA and RNA), lipids, and their relationship to their biological function, fundamentals of signal transduction, DNA replication, mutation, and repair, nucleotide biosynthesis, protein synthesis, and transcription. These principles will provide the basic concepts for understanding the biochemical basis for disease states and drug action. Pre: Enrollment in the College of Pharmacy Pharmaceutical Sciences PhD program.

PHPS 752 Biochemistry II - Metabolism (4) Biochemistry II - Metabolism will delve into metabolism and the interrelationships/integration of metabolic processes. The biochemistry of metabolism focuses on glycolysis, the tricarboxylic acid cycle, gluconeogenesis, and the synthesis and breakdown of biomolecules (carbohydrates, lipids, and amino acids). Metabolic control and regulation of pathways will be emphasized. This includes a discussion of mechanisms and control of signal transduction pathways, and recurring motifs in metabolism. Clinical correlates and metabolic diseases will be examined, with a substantial emphasis on metabolic syndrome. A sampling of biochemical techniques will also be described. Pre: Enrollment in the College of Pharmacy Pharmaceutical Sciences PhD Program.

PHPS 755 Advanced Pharmaceuticals I (3) This course will draw on the basic principles of chemistry, biology and physics to provide an understanding of how drug physico-chemical properties at the molecular and macroscopic assembly level are manifest in dosage form properties and performance. Students will integrate these principles to understand issues in the rational selection of dosage forms and drug delivery systems as well as their role in drug product development. Discussions of Good Manufacturing Practices and Good Compounding Practices will carry over into the lab portion of the class. Students will become comfortable with equipment; procedures and records used in the compounding of various dosage forms, and will practice clinical dispensing skills vital to shaping a truly professional pharmacist. Pre: Approval of Major Professor.

PHPS 756 Advanced Pharmaceuticals II (3) This course will draw on the basic principles and developmental aspects of drug formulation to deliver the active pharmaceutical ingredient through biological membranes to exert the therapeutic effect at site of action. Understanding of physicochemical properties of active pharmaceutical ingredient and additives or excipients, pharmacological properties and processability of drug delivery systems can be utilized for optimal performance of the drug delivery systems. Understanding of active pharmaceutical ingredient and additive or excipients physico-chemical properties at the molecular and macroscopic assembly level are manifest in dosage form properties and performance. Students will integrate these principles to understand issues in the rational choice of dosage forms and drug delivery systems as well as their role in drug product development. Discussions of Good Manufacturing Practices and Good Compounding Practices will carry over into the lab portion of the class. Students will become familiar with procedures and records used in the compounding of various dosage forms, and will practice clinical dispensing skills vital to shaping a truly professional pharmacy professional scientist. Pre: Enrollment in the College of Pharmacy Pharmaceutical Sciences PhD program.

PHPS 800 Resrch Dissertation-Phrm Sci (1-15) This course outlines the conduct of the dissertation project and preparation of the actual dissertation document for the Doctoral level student. The dissertation is a major undertaking that is a demonstration of mastery of a field of research in the Pharmaceutical Sciences and should represent an original and significant contribution to the field. The dissertation document will usually be no less than 150 pages in length and be based on a research project defined by the candidate's Primary Advisor. The project may take a variety of forms, for example, be quantitative, qualitative, or theoretical, the main criteria being that at the completion of the research the candidate can demonstrate mastery of and excellence in their chosen area of re-

search. Pre: Successful completion of the first, qualifying year of the PhD program progressing to Candidacy, and selection of a Primary Advisor, a Dissertation research topic and a Dissertation Committee.

PHPS x94 Special Topics in Subject Matter (Arr.) (IO) Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

PHPS x99 Directed Studies (Arr.) (IO) Statement of planned reading or research required. Pre: instructor's consent.

Psychology (PSY)

College of Arts and Sciences

PSY 500 Master's Plan Studies (1) Used for continuous enrollment purposes. Must be taken as CR/NC. Does not count toward fulfillment of degree requirements. Pre: Master's or Doctoral candidacy and instructor's consent.

PSY 601 Applied Multivariate Statistic (4) Advanced statistical techniques used in psychological research and assessment. Strategies of multivariate data screening, transformation, analysis, and interpretation. Computerized statistical packages designed for multivariate analyses.

PSY 602 Research Meth & Prgm Evaluatn (3) Basic research methodology including quantitative, qualitative, action research, and context-based research. Theoretical knowledge and practical experience in program design and evaluation. Strong emphasis will be given to the importance of research and program evaluation and the opportunities and difficulties encountered when conducting these in the counseling profession. Pre: PSY 601.

PSY 603 Psychological Assessment (4) Principles of psychological assessment. Historical perspective on psychological assessment. Assessment methods. Scales used in psychological assessment: assessment of personality, abilities, achievement, interests, and values. Assessment of environment. Quality of assessment. Assessment design and implementation. Interpretation of the assessment results. Cross-cultural aspects of assessment. Legal and ethical issues. Hands-on training to effectively utilize various assessment tools and write comprehensive assessment reports. Pre: PSY 601.

PSY 604 Profssnl Identity, Ethics (3) Ethical issues in counseling and psychological research. Ethical decision making, confidentiality, and ethical obligations. Research ethics and psychologists in the legal system. Ethical standards and guidelines.

PSY 611 Lifespan Human Development (3) Psychological, social, and physical development over the life span. Interaction among genetic make-up, human activity, and context in the process of development. Stages and mechanisms of development. Normative development and deviations from the norm. Theories of development. Research on developmental processes in various domains. Cross-cultural perspectives on human development. Current research issues.

PSY 612 Career Development (3) Work and work-related behavior over the life span. Relationships between life style and career development. Theories of vocational development. Career development of women and minorities. Occupational information and decision making. Impact of changing technology and job market. Application to career counseling with diverse populations.

PSY 613 Psychopathology over Lifespan (3) Abnormal development across the lifespan. DSM-IV classification of disorders and methods of appraisal. Etiology, diagnosis and treatment of child, adult, and geriatric disorders.

PSY 614 Family System (3) Family as an open system. Family structure, processes, and context. Family dynamics. Interaction among psychological, social, economic, and biological aspects of family functioning. Reciprocal relationships in the family. Interactions between families and their contexts. Cross-cultural differences in family organization and functioning. Problems in the family and ways of coping.

PSY 620 Counseling Theories (3) A pre-practicum course designed to help students gain an in-depth understanding of various counseling theories. Through readings, discussions, in-class exercises and homework assignments, students will learn the theories.

PSY 621 Counseling Theory and Skills (3) Theories and techniques of counseling, including processes, applications and outcomes.

PSY 622 Group Work & Counseling (4) (lec., lab) Group purpose, type, development, dynamics; leadership and diversity; group work and counseling theories, methods and skills; evaluation of group work and counseling; application of group work and counseling in a family, school and workplace settings. Students participate in an experiential learning group over the course of the semester.

PSY 623 Social & Cultural Foundations (3) Interaction between society and the individual. Socio-economic status, ethnicity and culture as determinants of behavior. Characteristics of multicultural and diverse societies and their effects on individual and group behavior.

PSY 624 Counseling Skills (3) A pre-practicum course designed to help students develop effective counseling skills. Through readings, discussions, in-class exercises and homework assignments, students will learn therapeutic skills.

PSY 640 Practicum (6) Supervised experience in a counseling setting, including 100 hours of supervised client contact. Repeatable if different field placement. Pre: PSY 602, 603 and instructor's consent.

PSY 641 Schl Behavr, Adjustmt, Prblms (3) School adjustment in children at all school levels. Factors contributing to academic success and effective social interaction. At-risk children. Coping processes. School adjustment among culturally diverse children and children with special needs. The role of school, family, and community in the child's academic performance and school behavior. Prevention and intervention strategies.

PSY 642 Educatnl & Vocatnl Assessment (3) Principles and goals of educational and vocational assessment and counseling applications. Assessment settings, populations, and procedures. Educational assessment methods. Vocational assessment methods. Interpretation and use of the assessment results. Cross-cultural, social, legal, and ethical issues. Pre: PSY 601, 603.

PSY 643 Schl & Career Guidance & Consu (3) History, principles, and goals of guidance and consultation in educational and work settings. Academic and career guidance. Individual and group guidance. Problem-specific, cultural, and developmental approaches to guidance and consultation. Guidance settings, populations, and procedures. School guidance and K-12 curriculum. Career services. Computerized guidance systems. Social, legal, and ethical issues. Pre: PSY 612, 641, or consent of the instructor.

PSY 651 Theories Of Family Counseling (3) Theoretical approaches used by systemic family therapists to assess and treat family problems.

PSY 652 Couple Counseling (3) Theory, research and practice in couple counseling from a systems perspective. Counseling process and outcome in distressed and dysfunctional couples, including cultural factors.

PSY 653 Treating Families in Crisis (3) Historical roots of family stress theory and basic theoretical approaches used by family therapists to assess and treat family stress and its symptoms.

PSY 654 Gender & Culturll Issues in Fam (3) Gender and cultural issues in the family system; historical aspects of gender; gender systems; gender issues related to marriage and family therapy; development of culture; cultural similarities and differences in human development; multi-cultural and multiracial families.

PSY 655 Systemic Sex Therapy (3) Human sexuality from the systems perspective. Common sexual attitudes and behavior problems. Analysis and intervention with sexual dysfunctions. Sex therapy with diverse populations of clients.

PSY 656 Child Maltreatment (3) An overview of child maltreatment, including abuse and neglect. Topics include the incidence and prevalence of child maltreatment; scientific theories and findings about the causes and consequences of maltreatment; forensic and clinical assessment;

mandated reporting requirements; other legal issues; and psychosocial interventions for maltreated children and their families.

PSY 659 Internship (9) Supervised clinical experience in community practice counseling settings, including 200 hours of supervised client contact. Pre: PSY 640 and instructor's consent.

PSY 700 Thesis Research (1-6) Supervised research, data analyses, literature review, and writing up of an original empirical study designed to develop and demonstrate the ability to do research and competence in scholarly exposition. Students are expected to work on their thesis under the supervision of their faculty and have their work reviewed by their thesis committee.

PSY x94 Special Topics in Subject Matter (Arr.) (IO) Special topics chosen by the instructor. Course content will vary. May be repeated for credit, provided that a different topic is studied. Additional requirements may apply depending on subject and topic.

PSY x99 Directed Studies (Arr.) (IO) Statement of planned reading or research required. Pre: instructor's consent.