



TOURO UNIVERSITY

C A L I F O R N I A

COLLEGE OF PHARMACY

STUDENT CATALOG

Effective Date August 1, 2014

Table of Contents

| | Pages |
|--|--------------|
| Table of Contents | 2-3 |
| Directions to Campus | 4-5 |
| A Message from the President of Touro University and College System | 6 |
| A Message from the Dean of Touro University California College of Pharmacy | 7 |
| Description and Purpose of the Catalog – Historical Perspective | 8 |
| Mission, Objectives, and Goals | 10 |
| Curricular Goals | 11 |
| Program Learning Outcomes – Student Learning Outcomes | 13 |
| Accreditation Status | 14 |
| ADMISSION, APPLICATION, TUITION AND FEES | 16 |
| Admission to the College of Pharmacy | 16 |
| Application to the College of Pharmacy | 19 |
| Policy of Non-Discrimination | 21 |
| Tuition & Fees | 22 |
| The Bursar’s Office | 22 |
| Tuition Payment – Tuition Refund Schedule | 22 |
| Financial Aid | 23 |
| Financial Assistance Programs Administered by Federal and State Agencies | 24 |
| Satisfactory Academic Progress | 26 |
| Important Financial Aid Terms | 26 |
| Technical Standards | 27 |
| Program and Curriculum Overview | 29 |
| Program and Curriculum Overview | 29 |
| Program Description and Requirements | 29 |
| Minimum Academic and Course Requirements | 29 |
| Graduates of Foreign Institutions | 30 |
| Advanced Placement Credit | 30 |
| Graduation Requirements | 30 |
| Courses and Program Description | 31 |
| Curriculum Sequence for the First (P1) and Second (P2) Years | 32 |
| Diagram of Curriculum Sequence for the P1 and P2 Years | 33 |
| General Class Schedules for P1 and P2 Students | 34 |
| Table - General Class Schedule for P1 Students | 34 |
| Table - General Class Schedule for P2 Students | 34 |
| Description of Didactic Courses | 34 |
| PHRM 601 | 34 |
| PHRM 602 | 35 |
| PHRM 603 | 35 |
| PHRM 604 | 36 |
| PHRM 605 | 36 |
| PHRM 606 | 37 |



| | |
|---|-----------|
| PHRM 607 | 37 |
| PHRM 608 | 38 |
| PHRM 609 | 39 |
| PHRM 610 | 39 |
| PHRM 611 | 40 |
| PHRM 612 | 40 |
| PHRM 613 | 41 |
| PHRM 614 | 41 |
| PHRM 615 | 42 |
| PHRM 616 | 42 |
| PHRM 600-A through PHRM 600-E | 43 |
| Description of Clinical Courses | 44 |
| Introductory Pharmacy Practice Experiences | 44 |
| PHRM 620 | 44 |
| PHRM 621 | 44 |
| PHRM 622 | 45 |
| PHRM 623 | 45 |
| Advanced Pharmacy Practice Experiences | 46 |
| PHRM 702A Clinical Sciences V - P3 Spring | 46 |
| PHRM 702B Clinical Sciences VI - P4 Fall | 47 |
| PHRM 703 APPE-Institutional Practice I | 47 |
| PHRM 704 APPE-Community Practice I | 48 |
| PHRM 705 APPE-Community Practice II | 50 |
| PHRM 706 APPE-Ambulatory Care I | 51 |
| PHRM 707 APPE-Ambulatory Care II | 52 |
| PHRM 708 APPE-Acute Care I | 53 |
| PHRM 709 APPE-Acute Care II | 54 |
| Curriculum Course Numbering: Years 3-4 | 55 |
| An example of a P3 & P4 Rotation Schedule | 57 |
| OTHER COP PROGRAMS | 58 |
| Dual Degree PharmD-MPH, Master's, Pharmacy Postgraduate Residencies/Fellowships | 58 |
| Touro College Officials | 59 |
| Touro University California Administration | 59 |
| College of Pharmacy Personnel | 60 |
| Administration and Staff | 60 |
| Faculty | 60 |
| Faculty - Biological and Pharmaceutical Sciences (Track 1 and Track 2) | 60 |
| Faculty - Social, Behavioral & Administrative Sciences (Track 3) | 62 |
| Faculty - Clinical Sciences / Pharmacy Practice (Track 4) | 62 |
| Faculty - Experiential (Track 5) | 64 |
| Touro Residents | 64 |
| Touro Fellows | 64 |

Directions to Campus

Touro University California is located on the historical Mare Island in the San Pablo Bay, north of San Francisco and minutes from the Sonoma-Napa wine country. The 44 acre campus provides a comprehensive medical library, state of the art anatomy laboratory, research and classroom suites, a student health clinic, dining facilities and student housing. The Mare Island campus includes the [College of Osteopathic Medicine](#) the [College of Education and Health Sciences](#), and the [College of Pharmacy \(TUCOP\)](#).

Main Address:

Our central mailing address is:

Touro University California
1310 Club Drive, Mare Island
Vallejo, CA 94592
Central Telephone 707-638-5200

Building Street Addresses:

Administration & Faculty 1 (Building H83) is **1549 Azuar Drive**
Administration & Faculty 2 (Building H84) is **1553 Azuar Drive**
Lander Hall (Building H86) is **1557 Azuar Drive**
The Library (Building 1322) is **1545 Azuar Drive**
The Farragut Inn is **1750 Club Drive**
Wilderman Hall is **1310 Club Drive**

Driving Directions:

From SFO Airport and San Francisco (1 hour & 15 minutes from SFO):

Exiting the Airport, follow the signs to Highway 101 North toward San Francisco and the Bay Bridge/Oakland. Cross over the Bay Bridge, stay in the left lanes, and exit at Highway I-80 East (Sacramento/Vallejo). Pass Emeryville, Berkeley, Richmond, and just over the Carquinez Bridge (\$5 toll), take the Curtola Parkway (which becomes Mare Island Way) through the city of Vallejo's waterfront. Turn left onto Mare Island Causeway (Tennessee Street) and cross the blue Mare Island drawbridge onto the Island, where you will be on G Street. Take your fourth (last possible) left turn onto Azuar Drive, and travel through two stop lights until you see St. Peter's Chapel on your left. Go 180 degrees around the round-about and continue ¼ mile with the large fabrication yard on your left. Bear left and turn right almost immediately (before the Touro University sign) into the main gate. Go straight (follow the signs) to get to the Administration & Faculty Building 2 (Building H-84), the Library, and our classrooms, gymnasium and lecture halls in Lander Hall.

From Oakland Airport (1 hour from OAK):

Exiting the Airport, follow the signs to Hegenberger Road and then to the I-880 Freeway North. Continue on I-880 past downtown Oakland toward San Francisco. Take the I-580/80 connector ramp to the right toward San Rafael/ Sacramento, which will place you on I-80 (Sacramento/

Vallejo). Pass Emeryville, Berkeley, Richmond, and just over the Carquinez Bridge (\$5 toll), take the Curtola Parkway (which becomes Mare Island Way) through the city of Vallejo's waterfront. Turn left onto Mare Island Causeway (Tennessee Street) and cross the blue Mare Island drawbridge onto the Island, where you will be on G Street. Take your fourth (last possible) left turn onto Azuar Drive, and travel through two stop lights until you see St. Peter's Chapel on your left. Go 180 degrees around the round-about and continue ¼ mile with the large fabrication yard on your left. Bear left and turn right almost immediately (before the Touro University sign) into the main gate. Go straight (follow the signs) to get to the Administration & Faculty Building 2 (Building H-84), the Library, and our classrooms, gymnasium and lecture halls in Lander Hall.

From the Golden Gate Bridge (1 hour from the north end):

Over the Golden Gate Bridge heading North on Highway 101 proceed past Mill Valley, Corte Madera, San Rafael, and Terra Linda to the Highway 37 (Vallejo) exit. Stay on Highway 37 following signs to Vallejo, and bear right onto Highway 37 at the Infineon Raceway (Hwy 121) turnoff. Continue on Highway 37 for approximately 10 minutes to the (first right hand) Mare Island/Walnut Avenue exit. On Mare Island, continue straight through the entry (divided road), proceed to the stop sign on G Street and turn right. Go to the next stop sign and take the only possible left turn onto Azuar Drive. Travel through two stop lights until you see St. Peter's Chapel on your left. Go 180 degrees around the round-about and continue ¼ mile with the large fabrication yard on your left. Bear left and turn right almost immediately (before the Touro University sign) into the main gate. Go straight (follow the signs) to get to the Administration & Faculty Building 2 (Building H-84), the Library, and our classrooms, gymnasium and lecture halls in Lander Hall.

From Sacramento Airport (1 hour & 20 minutes using Route 80):

Exiting the airport, follow 80 West to Vallejo. Turn off onto Highway 37, pass the amusement park on your left, and continue up and over the large bridge. Get into the right hand lane, and immediately exit at the far end of the bridge onto Mare Island. On Mare Island, continue straight through the entry (divided road), proceed to the stop sign on G Street and turn right. Go to the next stop sign and take the only possible left turn onto Azuar Drive. Travel through two stop lights until you see St. Peter's Chapel on your left. Go 180 degrees around the round-about and continue ¼ mile with the large fabrication yard on your left. Bear left and turn right almost immediately (before the Touro University sign) into the main gate. Go straight (follow the signs) to get to the Administration & Faculty Building 2 (Building H-84), the Library, and our classrooms, gymnasium and lecture halls in Lander Hall.

A MESSAGE FROM THE PRESIDENT OF TOURO COLLEGE AND UNIVERSITY SYSTEMS

In the four decades that have passed since Dr. Bernard Lander founded Touro College, our institution has grown significantly and achieved remarkable success. When launched with its first class of 35 students, Touro was envisioned as a great experiment in higher education, blending the best of Jewish and secular scholarship in an atmosphere of personal attention and academic excellence. Our mandate was to respond in innovative ways to the educational needs of the growing Jewish communities of New York and elsewhere, and to provide accessible and quality academic opportunities to underserved populations. Today, Touro College - recognized as Touro University in California and Nevada - remains faithful to its original mission, educating over 19,000 students of diverse backgrounds, worldwide. We offer a wide range of undergraduate, graduate, and professional degree programs in a variety of disciplines - from Jewish studies to education to law and to the health sciences - including outstanding programs for students pursuing careers in medicine and the allied health professions.

As the second president in Touro's history, I am deeply committed to Touro's mission of providing academic excellence and personal attention for students seeking to maximize their personal and professional growth. In carrying out our goals, we continue to work with our students in a collective effort to help make the world a better place for all. The Touro College of Pharmacy works towards these objectives by providing a solid educational foundation, promoting research and scholarship, and connecting directly with the community through unique programs that are responsive to the needs of a diverse population. Clinical instruction takes place in pharmacies, hospitals and in local communities, which allows our students to gain a better understanding of cultural issues that affect the pharmacist. At the same time, the College's thorough academic training in pharmacy and public health are helping to fill a societal need by addressing our nation's shortage of qualified pharmacists.

Thank you for joining us in the pursuit of our mission. I wish you the greatest success in achieving your academic and professional aspirations.

Sincerely,

Alan Kadish, M.D.

A MESSAGE FROM THE DEAN of TOURO UNIVERSITY CALIFORNIA, COLLEGE OF PHARMACY

Welcome to the Touro University California (TUC) College of Pharmacy! On behalf of the faculty and staff in the College, we look forward to working with you to make the vision of our university, “Educating caring professionals to serve, to lead, to teach,” into a part of your everyday lives.

It is an exciting time to launch a career as a pharmacist. What kind of pharmacist do you want to be? Do you envision yourself working in a community setting, in a hospital, for the government, or even running your own business? Do you see yourself working with patients, influencing health care policy, or developing new pharmaceuticals? Graduates from our programs have done all of these things, and more.

Never before have there been more opportunities for pharmacists to work in diverse settings, and to influence the scope of their practice. The knowledge and skills that you gain during the next four years will help shape your future and prepare you to succeed in a dynamic and evolving health care environment.

Get involved, have a voice, embrace challenges, and prepare for success. We welcome you to the TUC College of Pharmacy family and invite you to join us in making a difference in the lives of our patients and the communities we serve.

Rae R. Matsumoto, Ph.D.
Dean, College of Pharmacy

DESCRIPTION & PURPOSE OF THE CATALOG

The College Catalog is a reference intended to provide accurate information to students and others regarding Touro University College of Pharmacy (TUCOP).

The provisions of the Catalog are subject to change as a result of official actions of the administration. Such changes may be without notice. The student should not consider this Catalog to represent a contract between TUCOP and the student. The college disclaims any misrepresentations that may have occurred as a result of errors in preparation or typing.

Each student must recognize that he/she is responsible for knowledge of current academic regulations, general and specific requirements, student policies and operational policies, contained in this Catalog, the Student Handbook, and other official announcements and published documents of TUCOP.

Touro University-California reserves the right to make changes at any time in this catalog or in the requirements for admission, graduation, tuition, fees and any rules or regulations. TUC maintains the right to refuse to matriculate a student deemed by the faculty to be academically incompetent or otherwise unfit or unsuited for enrollment.

Historical Perspective

Touro was founded by Bernard Lander, PhD, LHD. The institution derives its name from Judah and Isaac Touro, leaders of colonial America who represented the ideal upon which we base our mission.

Touro is a system of Jewish-sponsored non-profit institutions of higher and professional education. Touro College was chartered in 1970 primarily to enrich the Jewish heritage, and to serve the larger American community. Approximately 19,000 students are currently enrolled in its various schools and divisions. Touro College has branch campuses, locations and instructional sites in the New York area, as well as branch campuses and programs in Berlin, Jerusalem, Moscow, Paris, and Florida. Touro University California and its Nevada branch campus, as well as Touro College Los Angeles and Touro University Worldwide, are separately accredited institutions within the Touro College and University System. For further information on Touro College, please go to: <http://www.touro.edu/media/>.

Since its founding, Touro College has developed into a major institution of higher education, which includes the following schools: The College of Arts and Sciences (1971); the School of Health Sciences (1972); the School of General Studies (1974), the Graduate School of Jewish Studies (1979); the Jacob D. Fuchsberg Law Center (1980); the School for Lifelong Education (1989); the New York School of Career and Applied Science (1995), the Graduate School of Education and Psychology (1995); Touro University College of Osteopathic Medicine Vallejo (founded in 1997 as the San Francisco College of Osteopathic Medicine); Touro University International, offering degree programs on the internet in Cypress, California (1999); the Lander College for Men in Kew Garden Hills (2000) created in 2001 through a merger of two previously separate divisions, the School of General Studies (founded in (1974) and the School of Career and Applied Studies (created in 1995); Touro University – Nevada (2004) and the TUC College

of Pharmacy in 2005.

Touro opened a branch in Moscow in Spring 1991 and its operations now include the Institute of Jewish Studies (branch campus) and a business program with Moscow University Touro (an independent entity) operated through an inter-institutional agreement. The branch campus in Jerusalem comprises the Graduate School of Jewish Studies, an undergraduate business program and the Touro Israel Option (year abroad program). In October 2003, Touro opened a small branch campus in Berlin.

Touro has long been interested in health professions education. In 1983, Touro established the Center for Biomedical Education, a cooperative program leading to an M.D. from the Technion-Israel Institute of Technology, Israel's premier school of applied sciences. Success in this and other related programs led Touro to explore the possibility of establishing a college of osteopathic medicine. Touro sought incorporation in the State of California, and in 1997 located a campus in the San Francisco Bay Area. The campus was moved to Mare Island, California in 1999. In 2003, Touro University College of Osteopathic Medicine (TUCOM) became the founding College of Touro University California. As Touro College looked to other potential sites for a college of osteopathic medicine, Nevada was chosen as a potential site due to the physician shortage there, and the rapidly growing population within Las Vegas and the surrounding communities. The branch campus, Touro University College of Osteopathic Medicine - Nevada, matriculated its first class in Fall 2004 and provides programs in osteopathic medicine and physician assistant studies.

Touro University California is now composed of three colleges:

- **College of Osteopathic Medicine** (founded in 2003), which grants the Doctor of Osteopathic Medicine Degree (DO)
- **College of Education** (founded in 2004) **and Health Sciences** (founded in 2003), which grants the Bachelor of Science and the Master of Science in Physician Assistant Studies-MSPAS degree, Master of Public Health-MPH degrees, and teacher credentials. Through its School of Nursing (founded in 2013), it also grants the Associate Degree Nurse (ADN) to Master of Science in Nursing (MSN). with a Bachelor of Science in Nursing (BSN) to MSN option.
- **College of Pharmacy** (founded 2005), which grants the Doctor of Pharmacy degree (PharmD), the Master of Science in Medical Health Sciences with a focus on Pharmacy Sciences degree (MSMHS-COP), and Post Graduate Year 1 and Year 2 residencies.

MISSION, OBJECTIVES AND GOALS

Mission of Touro College

Touro College is an independent institution of higher and professional education under Jewish sponsorship, established to perpetuate and enrich the Jewish heritage and to serve the larger community in keeping with the Judaic commitment to social justice, intellectual pursuit, and service to humanity.

Vision Statement of Touro University – California

The vision of Touro University – California is: Educating caring professionals to serve, to lead, to teach.

Mission of Touro University – California

The mission of Touro University – California is to provide quality educational programs in the fields of health care and education in concert with the Judaic commitment to social justice, intellectual pursuit, and service to humanity.

Mission of Touro University College of Pharmacy

The College of Pharmacy will serve society through its programs in pharmacy education, through scholarship and through service. The College will strive to prepare students to be competent, caring and ethical professionals dedicated to the provision of pharmaceutical care and members of the health care team. The College's mission statement is published on the TUC website (www.tu.edu) and in programmatic literature.

Vision Statement of Touro University College of Pharmacy

We envision:

- A College that provides a learning environment that is responsive to the needs of a diverse population of students and their diverse learning styles;
- A College that produces pharmacists who are prepared to offer pharmaceutical care in all practice settings and to evolve with the profession as its clinical activities increase;
- A College that produces leaders who will accept responsibility for providing care and represent the pharmacy profession to other health professions and the public;
- A College that embraces technology as a means to advance pharmacy practice and improve health care outcomes;
- A College that is committed to the professional development of its faculty in teaching, scholarship and service; and

- A College that embraces collegiality as a central value in relationships among and between faculty, students and other health professionals.

The College's vision statement is published on the TUC website (www.tu.edu) and in programmatic literature.

CURRICULAR GOALS

The following curricular goals and objectives of the College of Pharmacy serve as guidelines for the design and organization of our curriculum:

Since curricular competencies reflect abilities necessary to entry-level pharmacy practice, we must see that all graduates are proficient in all of the competencies.

GOAL 1

Provide a curriculum that produces graduates proficient in all the professional and educational competencies required, and who have met all outcome expectations related to those competencies.

- Curricular design should allow all students the time, resources, and opportunities to achieve all competencies.
- Outcome expectations and methods of assessment must relate to the desired professional and educational competencies, and be able to provide reasonable assurance of a student's achievement of these competencies.
- Curricular competencies and outcome expectations are reviewed annually by the faculty and by practicing pharmacists to ensure their relevance to contemporary practice.
- Assessment methods are reviewed regularly to ensure they relate to the stated proficiencies and outcome expectations, and that they are adequate measures of achievement.

Since the educational environment is critically important to the appreciation of curricular content, we are obligated to provide the optimal learning environment.

GOAL 2

Design a curriculum that provides a student-centered, interactive learning environment that is cooperative rather than competitive, and able to accommodate individual learning styles.

- Class time should focus on student learning rather than faculty teaching.
- Students should take responsibility for their own learning, be encouraged to participate, and regularly self-assess their progress toward achievement of outcome expectations.
- Faculty should design and guide educational experiences of varied types to accommodate and facilitate different styles of learning.
- Educational experiences can include case studies, discussions, debates, simulations, problem solving, role-playing, and other presentations that allow students to apply, analyze, integrate, and evaluate knowledge.
- The learning environment and daily planned group activities should stimulate participation and promote cooperation towards outcomes rather than competition among students.
- Students should be encouraged to teach each other and learn from each other.
- In designing learning experiences for students, the faculty will recognize and accommodate

different styles of learning by providing varied types of educational experiences.

Since success can be and should be achieved by all students given clear outcome expectations, sufficient time, and ample feedback, the assessment tools must be critical and accurate.

GOAL 3

Employ assessment tools that emphasize achievement of outcomes.

- Assessment, feedback and reassessment are the fundamental means to achievement.
- Knowledge and critical thinking skills are achieved at individual levels of performance.
- Students working in teams often can arrive at answers that elude them individually.
- The curriculum should communicate clear outcome expectations to all students, and produce entry-level, generalist pharmacy practitioners.
- Individual outcomes should be assessed through examination and feedback provided by review and reassessment.
- Team assignments should be assessed by peer- and self- evaluations.
- The most decisive methods should be employed to assess a student's progress, provide feedback about their progression to students and teachers, and show deficiencies and corrective procedures.
- Skills are practiced periodically throughout all four years so that mastery is achieved.

Since graduates must develop abilities beyond the core knowledge and skills specific to the practice of pharmacy, they must be able to reason, to educate themselves and others, and be committed to lifelong learning.

GOAL 4

Produce graduates who have the ability to solve problems, make wise decisions, teach and learn by themselves, and remain committed to lifelong learning.

- The curriculum provides opportunities to develop problem-solving skills.
- The curriculum provides opportunities to develop problem-solving skills.
- The curriculum assigns student projects that go beyond the classroom.
- The curriculum gives students educational experiences that develops the ability to locate, retrieve, and assess information for the benefit of their patients.

To be successful and highly desirable to employers, graduates need a curriculum that is up to date on current concepts and realities of pharmacy practice.

GOAL 5

Produce graduates who are able to meet the expectations of the workplace.

- The outcome expectations of the curriculum will be reviewed annually by current pharmacy practitioners to ensure their relevancy to the profession.
- Data about a student's knowledge, skills, attitudes and behaviors from the practice experiences, and employer satisfaction surveys will give feedback and assessment of the quality and preparation of graduates for contemporary pharmacy practice.

Program Learning Outcomes

PharmD Program Student Learning Outcomes

Professional pharmacist competencies that must be achieved by graduates through the professional degree program curriculum are the ability to:

1. Provide patient care in cooperation with patients, prescribers, and other members of an interprofessional health care team based upon sound therapeutic principles and evidence-based data, taking into account relevant legal, ethical, social, cultural, economic, and professional issues, emerging technologies, and evolving biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences that may impact therapeutic outcomes.
2. Manage and use resources of the health care system, in cooperation with patients, prescribers, other health care providers, and administrative and supportive personnel, to promote health; to provide, assess, and coordinate safe, accurate, and time-sensitive medication distribution; and to improve therapeutic outcomes of medication use.
3. Promote health improvement, wellness, and disease prevention in cooperation with patients, communities, at-risk populations, and other members of an interprofessional team of health care providers.

These professional competencies must be used to guide the development of stated student learning outcome expectations for the curriculum. To anticipate future professional competencies, outcome statements must incorporate the development of the skills necessary to become self-directed lifelong learners. More specifically, the PharmD Program should prepare students for these professional competencies and outcomes:

1. Communicate with health care providers
2. Communicate with patients and caregivers.
3. Gather and use specific information (e.g., patient histories, medical records) to identify patient medication-related problems.
4. Develop a patient care plan to manage each medication-related problem.
5. Work with the health care team to implement the patient care plan.
6. Document pharmaceutical care activities.
7. Interpret epidemiologic data relevant to specific diseases and their management.
8. Interpret economic data relevant to treatment of disease.
9. Manage the system of medication use to affect patients.
10. Identify and use risk reduction strategies to minimize medication errors.
11. Provide patient care in accordance with legal, ethical, social, economic, and professional guidelines.
12. Work with other stakeholders (e.g., patients and other health professionals) to engender a team approach to assure appropriate use of health care resources in providing patient care.
13. Interpret and apply drug use policy and health policy.
14. Work with other stakeholders (e.g., patients and other health professionals) to identify and resolve problems related to medication use.
15. Promote wellness and disease prevention services.
16. Practice pharmacy in interprofessional and collaborative practice settings.
17. Search the health sciences literature.
18. Evaluate the health sciences literature.
19. Reflect critically on personal skills and actions and make plans to improve when necessary.

20. Accept and respond to constructive feedback.

ACCREDITATION STATUS

Programmatic Accreditation

Public Disclosure: The Accreditation Council for Pharmacy Education (ACPE) requires that all Colleges and Schools of Pharmacy with **Full Accreditation status** utilize the following language when referring to the accreditation status of the program in any publication, both in print and on the program's web site:

"The Touro University California College of Pharmacy Doctor of Pharmacy program is accredited by the Accreditation Council for Pharmacy Education, 20 North Clark Street, Suite 2500, Chicago, IL 60602-5109, 312/664-3575; FAX 312/664-4652, website www.acpe-accredit.org."

It is expected that the accreditation status of the program will be fully disclosed.

Accreditation is the public recognition accorded a professional program that is judged to meet established qualifications and educational standards through initial and subsequent periodic evaluations. Accreditation applies to professional programs and is distinguished from certification or licensure, which applies to individuals. Professional programs in pharmacy are those leading to the doctor of pharmacy degree. Those programs accredited by the ACPE are listed on the ACPE website. Recognition of the doctor of pharmacy program on the ACPE website denotes overall compliance with the standards of the respective degree program. It does not imply or infer that all doctor of pharmacy programs are totally equivalent. Accreditation standards include both quantitative and qualitative parameters.

- **Scope of Accreditation**

ACPE accredits the professional degree program leading to the Doctor of Pharmacy degree. Evaluation and accreditation of this program is in accord with Standards and Guidelines for the Professional Degree Program Leading to the Doctor of Pharmacy (PharmD) Degree. The latest revision was adopted January 15, 2006, became effective July 1, 2007.

- **External Recognition of ACPE**

ACPE is recognized for the accreditation and preaccreditation (precandidate and candidate status) of professional degree programs by the Secretary of Education, United States Department of Education. ACPE accreditation serves to establish eligibility for participation in a variety of federally funded programs, not including eligibility for Title IV Programs, Higher Education Act, 1965, as amended. ACPE is also recognized by the Council for Higher Education Accreditation (CHEA) for meeting their recognition criteria.

- **Eligibility for ACPE Accreditation**

In order to be eligible for initial or continuing accreditation, the Doctor of Pharmacy program must be part of an independent college or school of pharmacy or a college or school of pharmacy within a University, which is regularly incorporated and is a legally empowered postsecondary educational institution. The institution housing the college or school, or the independent college

or school, must be accredited by a **regional/institutional accreditation agency** recognized by the U.S. Department of Education or another agency acceptable to the ACPE. **For further ACPE statements defining Accreditation Status, see (www.acpe-accredit.org).**

Regional Accreditation: Touro University currently has **regional accreditation** by the Western Association of Schools and Colleges (WASC). In June 2005, WASC approved the addition of the Doctor of Pharmacy program to the TUC campus. TUC is currently engaged in the WASC re-accreditation process that will culminate in 2018.

ADMISSION, APPLICATION, TUITION AND FEES

Admission to the College of Pharmacy (TUCOP)

Minimum Academic and Course Requirements

All candidates are required to have obtained a Baccalaureate Degree from a regionally accredited institution of higher education prior to the start of mandatory orientation for the Class into which they have been accepted.

Candidates to the College of Pharmacy are required to satisfy the following course and academic requirements:

- 8 semester/12 quarter units of Inorganic Chemistry with lab
- 8 semester/12 quarter units of Organic Chemistry with lab (4 semester units of Biochemistry may be substituted for the second semester of Organic Chemistry)
- 4 semester/6 quarter units of Human Anatomy/Physiology (combined course) with lab **OR** one course each of Human Anatomy and Human Physiology with labs
- 4 semester/6 quarter units of Microbiology with lab
- 3 semester units of Calculus
- Prerequisite courses must be completed with a grade of "C" or better prior to the start of mandatory orientation
- Minimum cumulative and science GPA's of 2.75 (Candidates who qualify for secondary applications typically have GPA's substantially higher than 2.75)

Though not required, a Biochemistry course is recommended for additional academic preparation. If available, PCAT scores may be submitted with your PharmCAS application.

Important Note: It is possible to apply, interview, and be accepted into the program without having completed the Bachelor's Degree and/or some prerequisites, provided all requirements, including completion of the Bachelor's Degree, are satisfied prior to the start of mandatory orientation.

Graduates of Foreign Institutions

The Touro University - California College of Pharmacy accepts applications from graduates of foreign institutions provided they hold either US Citizenship or US Permanent Resident Status at the time of application.

In addition, the College of Pharmacy will not accept foreign transcripts. Transcripts and coursework from foreign institutions must be evaluated by a [recognized evaluation agency](#). Evaluations must be sent directly to PharmCAS and must include semester units and letter grades for each course, as well as a cumulative GPA and, if possible, a science GPA.

All Candidates

Work experience in pharmacy, either paid or volunteer, is encouraged and looked upon favorably by the Committee. The College of Pharmacy does not require standardized examinations (e.g. PCAT or GRE) for entrance into the program, though candidates may submit these scores to supplement their application if they wish. All candidates must hold US Citizenship or US Permanent Resident Status at the time of application. The requirements listed above apply to graduates of foreign institutions. No exceptions are granted.

Advanced Placement (AP) Credit

Touro University - California accepts advanced placement credit as long as such credit appears on the undergraduate transcript and indicates either specific subject credit (e.g. General Chemistry - 4 units) or specific course credit (e.g. Chem 101 - 4 units). General advanced placement credit without such specifications is not accepted.

Admission Procedures

Admissions for this program is conducted on a rolling basis according to the following steps:

1. The Touro University - California College of Pharmacy does not accept direct applications. All candidates are required to submit a primary application through the [Pharmacy College Application Service \(PharmCAS\)](#).
2. [Three letters of recommendation](#) are required. Letters may be sent directly to PharmCAS (for inclusion with the primary application). Letters may also be mailed directly from the letter writer to the College of Pharmacy using the address listed below. No specific form is required, though letters should be on professional letterhead.
3. If determined eligible, candidates will be notified via U.S. mail and will be invited to submit a supplemental application. **Do not submit a supplemental application unless invited to do so.**
4. Complete Applications for Admission, which will include the PharmCAS primary application, three letters of recommendation, and the supplemental application, are reviewed by the Admissions and Standards Committee to determine interview eligibility. Reviews are conducted on an on-going basis and decisions may not be immediate. Following this review, eligible candidates may be invited to attend a personal interview with the Admissions and Standards Committee. A [writing sample](#) is required as part of the interview day.
5. Candidates are typically advised of their interview results within two weeks of the date of the interview, via U.S. mail.
6. Neither the submission of application materials nor attending an interview guarantee admission into the program. Both are required steps in the admissions process. Full information regarding all of these steps may be found on the [General Application Information](#) page.
7. Incoming and current students may be required to submit to a background check at their expense either prior to or during their enrollment at Touro University - California. Facts uncovered as a result of a background check which could preclude licensure and/or practice in the profession may impact their ability to begin or continue their education at the University.

Suggested Application Timeline

Timely submission of application materials assures the best possible chance of gaining admission to the program. The following timeline assumes a candidate will obtain a Bachelor's Degree and wishes to enter the pharmacy program immediately following completion of the undergraduate program. Individual preference and situations will vary, which may necessitate adjusting the timeline.

The College of Pharmacy may, if warranted, extend the interview process beyond that which is mentioned in this timeline.

- June prior to your senior year, begin completing your PharmCAS application. If eligible, complete your supplemental application as soon as possible.
- September through February of the Senior year, interview
- October through March of the Senior year, get accepted
- Complete all undergraduate [requirements and prerequisites](#)
- Start the College of Pharmacy in August

Pharmacy Admissions Tips

- More than three letters of recommendation may be submitted if desired. Because PharmCAS allows a maximum of three letters, additional letters may be sent directly to the College of Pharmacy. Make sure your name, the name of the program to which you are applying (College of Pharmacy) and your PharmCAS Applicant ID number appear on all letters.
- Politely follow up with your letter writers to insure letters are sent in a timely manner.
- It can take several weeks for a school to provide transcripts. Ask for them early and follow up to make sure they are sent. Missing transcripts are the number one reason for delays with the PharmCAS system.
- Use email (jacqueline.harte@tu.edu) to check the status of your College of Pharmacy application.
- Considerable screening occurs prior to an interview. Those invited to interview should feel encouraged that, on paper, the Committee feels they are competitive.
- We do not interview solely for wait-list spots. If we are still interviewing, candidates are still being accepted.
- Among other things, the panel looks for 1) ability to articulate in front of colleagues, 2) critical thinking skills, 3) listening skills, 4) sensitivity to others, 5) knowledge of current events in pharmacy.
- Chances of getting accepted are often proportional to the number of seats available at the time of the interview. The earlier one interviews, the better the chances.
- Remember that getting into graduate school is a journey. Keep the ruts and potholes in perspective.

Mailing Address

Touro University - California
College of Pharmacy Admissions
1310 Club Drive
Vallejo, CA 94592

Important Notes

- All admissions correspondence, including the Supplemental Application, additional letters of recommendation, and supporting documents, should be mailed to the above address.
- Please make sure to include your name, PharmCAS ID number, and the program for which you are applying (Pharmacy) on all correspondence.
- The admissions fax number is (707) 638-5250.
- Be sure to update the Office of Admissions (jacqueline.harte@tu.edu) any time your contact information (mailing address, phone number, or email address) changes.

Application to the College of Pharmacy (TUCOP)

Primary Application

The Touro University - California College of Pharmacy does not accept direct applications. All applicants are required to submit a primary application through the [Pharmacy College Application Service \(PharmCAS\)](#). The PharmCAS application deadline is typically the first week of February.

Touro University performs an initial screening based off of the PharmCAS primary application. The qualifying bar for this screening is reviewed each year; sometimes during an actual admissions cycle. Candidates will be notified of their status via U.S. mail and those who qualify will be invited to submit a supplemental application.

Supplemental Application

Candidates who pass the initial screening process will be invited to submit a [Supplemental Application](#) and are mailed a supplemental application packet. As a convenience, the supplemental application materials may also be completed, then printed, from this website. The supplemental application cannot be submitted electronically as it needs to be submitted with the application fee. The [Supplemental Application](#) includes both the application itself and the Personal Statement.

The supplemental application fee is \$50.00 and serves to cover the additional overhead in performing the initial screening from the primary application. The vast majority of pharmacy schools send supplemental applications to all candidates without a screening. Those who receive a supplemental application from Touro University - California have the added advantage of knowing that, on initial review, it has been determined that the candidate meets our minimum requirements. The supplemental application fee is not refundable under any circumstance.

PLEASE DO NOT SUBMIT A SUPPLEMENTAL APPLICATION UNLESS YOU ARE INVITED TO DO SO. Supplemental Applications received prior to notification of eligibility will be returned unprocessed.

If you have trouble printing the supplemental application correctly, you may need to adjust the font size in your internet browser. For most browsers, you can do this by clicking on "view", then

"text size", then select the appropriate size. The application appears to print best on the "medium", "small", or "smallest" settings. If this does not correct the problem, please refer to the documentation which accompanied the browser you are using or complete a hardcopy of the supplemental application.

Letters of Recommendation

The College of Pharmacy requires three letters of recommendation, which should be submitted with the PharmCAS application. One letter must be from a science faculty member. The source of the remaining two letters is up to the applicant, though at least one letter relating to pharmacy work (e.g. pharmacist, pharmacy supervisor, etc.) is preferred. Letters from family members will not be accepted. Additional letters may be submitted directly from the letter writer to the University and must include the applicant's full name and PharmCAS ID number.

What Constitutes a Complete Application?

A complete application for admission will include the following:

- [PharmCAS](#) Primary Application
- [Supplemental Application](#)(including the Personal Statement)
- All required letters of recommendation

Only candidates who submit all required materials will be considered eligible to obtain an interview. Submission of a complete application for admission does not guarantee an interview and not all candidates will be interviewed.

The Interview

The Admissions and Standards Committee reviews complete applications and extends invitations to interview on a rolling basis. Invitations are sent to those candidates showing the highest potential to perform well at Touro University - California as students, and finally as successful pharmacists.

Interviews are conducted in a panel style, group format, and are typically held from late September through April. Accepted candidates are required to submit a non-refundable acceptance deposit within two weeks of the date of acceptance. A refundable tuition deposit is required later in the process. Upon matriculation, both deposits are credited toward tuition. The interview is a required step in the admissions process and does not guarantee acceptance into the program.

Touro University-California complies with Section 504 of the Rehabilitation Act and the Americans With Disabilities Act by providing reasonable accommodations to candidates for admission with known disabilities. To ensure that disabled candidates timely receive all reasonable accommodations necessary for them to participate in the on-campus admissions interview process, Touro University strongly encourages such candidates to contact the Office of Admissions (admit@tu.edu) at least three (3) days before their scheduled interview.

Due to the nature of the admissions process, all interviews are conducted in-person on the Touro University - California campus. Phone interviews are not provided.

Writing Sample

All candidates who interview for the College of Pharmacy are required to compose an essay as part of the interview day. This essay will be based off of one of several topics provided to you. Though the specific topics are never released prior to the interview, the Admissions and Standards Committee has offered the following suggestions for those wishing to prepare:

- Substance is more important than grammar and spelling. A few minor grammatical and/or spelling errors will be overlooked.
- Critical thinking is more important than actual handwriting, though one should be prepared to write in a manner that is legible.
- Did you answer the question and is your position adequately defended?
- Did you complete your essay in the time allotted?

The writing sample is one of several items, including the actual interview, application, letters of recommendation, and others, which are evaluated to determine whether or not you should be offered a seat in the class.

Deposits

Candidates who are accepted are required to submit a non-refundable acceptance deposit. A refundable tuition deposit is required later in the process. Upon matriculation, both deposits are credited towards tuition.

POLICY OF NON-DISCRIMINATION

It is the policy of the University to admit qualified students irrespective of race, sex, color, national origin, religion, sexual orientation, or disability. To be considered for admission to any program offered by the University, a student must possess the academic credentials and professional attributes deemed essential by the respective program admission's committee for selection to the program.

TUITION & FEES

RESPONSIBILITIES OF ACCEPTED APPLICANTS

All accepted applicants are required to submit two deposits in order to secure their place in class.

1. Acceptance Deposit: For applicants accepted to TUCOP, a non-refundable acceptance deposit of \$2,000, payable two weeks after notification of acceptance, is required.
2. Tuition Deposit: An additional payment of \$1,000 is due by May 15th for those accepted for admission before May 1st, and by June 15th, for those accepted after May 1st. This tuition deposit is refundable if notice of cancellation is made prior to the first day of mandatory orientation.

Upon matriculation, the entire \$3,000 is applied toward the total tuition.

Tuition and Fees for Academic Year 2014-2015. Tuition for the 2014-2015 academic year is \$21,300 per semester or \$42,600 for the first academic year. There is an additional Student Fee of \$260 which includes the Student Health Clinic fee for both semesters of the first academic year. Tuition and fees are payable to the Bursar upon registration at the beginning of each semester. Students

may pay by personal check, bank check, certified check, money order, or Visa/Master Card. Students financing a portion of their education through grants, loans, or scholarships must provide proof of such awards at registration. Students without such documentation will be expected to pay a deposit towards their tuition, and will be refunded any excess once the College receives the award.

Additional Financial Responsibilities of Students. Expenses associated with attending Touro University College of Pharmacy may include tuition, fees, supplies, books, transportation and housing and other living expenses. Each student is responsible for purchasing his/her own laptop computer and related technology equipment and for maintaining Internet connectivity through an Internet Service Provider. Students are responsible for the purchase of their books and supplies. Expenses presented by Touro faculty and staff as related to education programs are estimated and are provided as a reference only. The Board of Trustees reserves the right to change the fee schedule without prior written notice.

THE BURSAR'S OFFICE

The Bursar's Office is responsible for managing student accounts and collecting tuition and fees from students on behalf of the University. The Bursar's Office receives and disburses the federal and private loans that the students receive through the Financial Aid Office. The Bursar's Office also processes refund checks for students who receive funds in excess of their tuition and fees to cover their living expenses while attending the University. In addition, the Bursar works with those students who are having financial difficulty meeting their financial obligations to the University.

TUITION PAYMENT

All checks and money orders should be made payable to Touro University. If payments are made through the mail, please use the address as follows:

Touro University California
Office of the Bursar
1310 Club Drive, Mare Island
Vallejo, CA 94592

Bursar's Office:
Email: tuc.bursar@tu.edu

Phone: 707-638-5253
See: studentservices.tu.edu/bursar

TUITION REFUND SCHEDULE

A student wishing to withdraw from classes must notify the Office of the Registrar by filling out an Add/Drop form. On approved applications, the following refund schedule will apply:

- Before the opening of class 100% of tuition and Fees (excluding tuition deposit)
- During the first week of classes 90% of tuition and fees
- During the second week of classes 75% of tuition and fees
- During the third week of classes 50% of tuition and fees

- During the fourth week of classes 25% of tuition and fees
- After the fourth week of classes No refund

Please note that as of the summer 2000 semester, new Federal Regulations are in effect when a Title IV funds recipient withdraws from school. You may obtain a copy of these regulations from the Financial Aid office. These Federal Regulations will supercede the policy for refunds established by TUC.

If the student has not paid full tuition and fees for the term in which the withdrawal takes place, he or she must pay the proportionate amount noted above before leaving the University. The withdrawal date is the date that the Dean of Students receives written notice of withdrawal, i.e., a completed Official Withdrawal Form. In cases of academic dismissal, tuition paid in advance for the term immediately following the dismissal date will be 100% refundable.

FINANCIAL AID

GENERAL INFORMATION

Most TUCOP students will be eligible to receive sufficient aid to meet their college expenses. Some students pay by check or money order or develop a payment plan with the Bursar. Many students at TUCOP pay for tuition and fees by applying for and receiving a variety of grants, scholarships, and loans. Regardless of the method of payment chosen, all tuition must be paid in full each semester. Students who experience problems in paying their tuition should confer immediately with the Bursar.

TUCOP participates in various grant and loan programs designed to assist qualified students who have limited resources. The programs help bridge the gap between the cost of attending school and the student's available funds. The policies enable students who demonstrate need to complete their course of study with minimal financial concerns. Most awards are determined by need, but financial need has no bearing on admission decisions.

TUCOP participates in and receives funds from federal, state, and local sources, including:

- Federal Subsidized Stafford Loans and Federal Unsubsidized Stafford Loans
- Federal Perkins Loan Program
- Federal College Work Study Program (CWS)
- California Graduate State Fellowships
- Veterans Administration Benefits
- Armed Forces Health Professions Scholarship Program

Eligibility Requirements

To qualify for federal financial aid, one typically must:

1. Be a U.S. citizen or eligible non-citizen;
2. Be registered with the Selective Service (if required);
3. Be enrolled in an eligible program;
4. Be making satisfactory academic progress (SAP);
5. Not be in default on a student loan or owe a refund on a student grant.

A brief description of some of the programs offered follows. Browse the Financial Aid pages for more complete and helpful information on Federal, California, and other financing options. Since the process of applying for and receiving aid is complex, College personnel are available to assist students in understanding the requirements of the system. To contact the Financial Aid Office, click on finaid@tu.edu or telephone 707-638-5280.

FINANCIAL ASSISTANCE PROGRAMS ADMINISTERED BY FEDERAL AND STATE AGENCIES

Federal Subsidized Stafford Loans & Federal Unsubsidized Stafford Loans

- **Federal Subsidized Stafford Loans** – The US Department of Education pays the interest while the student is in a deferment status and during the grace period.
- **Federal Unsubsidized Stafford Loans** – The student pays the interest while he/she is in a deferment status and during the grace period.

These loans are made through lending institutions, such as banks, etc. The federal government guarantees repayment of the loan and may pay the interest while the borrower is a student. Students must demonstrate financial need throughout the University's regular financial aid application process to receive a Subsidized Stafford Loan. Funds are issued in two (2) installments during the academic year – one each semester. Loan payments are mailed to the University and released to students in one payment each semester after enrollment and/or satisfactory academic progress have been verified. Prior to receipt of a Federal Stafford Loan an origination and an insurance premium will be subtracted from the proceeds of the loan. These fees are subject to change. The interest rate is variable and capped at 9%. Students are granted a six-month grace period after graduation or withdrawal from the University before interest is charged or repayment begins. The minimum repayment is \$50 per month. A separate loan application must be completed to apply for funds from this program.

Federal Work-Study Program

The purpose of the Federal Work-Study program is to stimulate and promote part-time employment, particularly for those with great financial need. Part-time positions available through the Federal Work-Study Program may involve work at the University or in a public or private non profit organization. Students may work no more than an average of 20 hours per week when classes are in session and up to 30 hours per week when classes are not in session. In accordance with federal regulations, the student's net earnings, that is gross earnings minus taxes and incidental expenses, must be applied against the student's cost of education for his/her next period of regular enrollment at the University. The minimum pay rate for Federal Work-Study positions at the TUC is \$15.00 per hour and students are paid according to established payroll procedures. Eligibility for the University Work-Study Program is determined by TUC's Financial Aid Office.

California Graduate State Fellowship

The California Student Aid Commission awards approximately 500 Graduate State Fellowships annually to California residents. Candidates must plan to pursue recognized degrees at eligible California graduate/professional schools and must demonstrate their intent to become a college or university faculty member. This program assists with tuition and fees. Details and application forms are available from the Financial Aid Office.

Western Interstate Commission for Higher Education (WICHE)

WICHE scholarships are available to osteopathic medical school applicants from Arizona, Montana, New Mexico, Washington and Wyoming. These states may be able to assist students in achieving professional goals through the Western Interstate Commission for Higher Education. WICHE's Professional Student Exchange Program enables students to enroll in out-of-state graduate/professional program when those fields of study not available at public institutions in their home state. Home states pay a support fee to the College to help cover the cost of the student's education for the "normal" length of the program. Western States students are urged to apply for certification in the program by October 15th of the year preceding anticipated admission.

Veterans Benefits

Many programs of educational assistance benefits are available to those who have served in the active military, naval or air service and to their dependents. Detailed information on all veterans' benefits can be obtained from offices of the Veterans Administration. The standards of academic progress for students receiving educational benefits through the Veteran's Administration are as follows: Probation is defined as a period of time during which the student's progress will be closely monitored by the Student Promotion Committee and the Dean of Students. The period of probation will be a maximum of three (3) consecutive semesters. A student who is placed on probation for more than three (3) consecutive semesters will be ineligible for certification of educational benefits through the Veterans Administration.

Additional Costs of Borrowing: Loan Fees

In addition to interest, FFEL borrowers also pay insurance premiums and origination fees on their loans. A lender charges each FFEL borrower an origination fee. A guaranty agency charges the lender an insurance premium on each loan it guarantees. Generally, the lender passes this cost on to the borrower. The maximum insurance premium that a guarantee agency may charge the lender of a Stafford Loan or Plus Loan is a one-time fee not to exceed 1% of the principal amount of the loan. If the lender passes this charge on the borrower, the fee must be deducted proportionately from each loan disbursement. The origination fee is 3% of the principal amount of the loan. A lender may (but is not required to) charge an origination fee on an Unsubsidized Stafford Loan. The lender must deduct (collect) the origination fee proportionately from each disbursement, regardless of the type of loan on which it is being charged.

Federal Consolidation Loans

Loan consolidation enables a borrower with several loans to obtain one loan with one interest rate and repayment schedule. An eligible lender will pay off the student's existing loans and create a new loan to replace them. A defaulted loan may be included in a consolidation loan if the borrower has made satisfactory repayment arrangements with the holder of their loan. A borrower can also consolidate a defaulted loan if he or she agrees to repay the Consolidation Loan under an income-sensitive repayment plan. A lender must offer standard, graduated, and income-sensitive repayment options on Consolidated Loans. To be eligible for a Consolidation Loan, a borrower must be in the grace period or in repayment status on all loans being consolidated. The repayment period varies from 10 to 30 years, depending on the amount consolidated. The interest rate for a Consolidation Loan is the weighted average of the interest rates of the loan consolidated. There are no insurance premiums or other fees for loan consolidation.

Title VII Funds

TUCOP participates in the following Title VII program: **Scholarship for Disadvantaged Students.**

These funds are made available through the health profession and nursing student assistance programs and represent a major resource available to students seeking to finance health care education. They are administered in accordance with the Department of Health and Human Services, and will cover tuition and fees on an annual basis. Students with the highest financial needs will be considered.

Details about eligibility criteria's are available in the Financial Aid office. Applications will be sent to pre-selected students, and will be reviewed by a committee. After reviewing of all data, the committee will notify in writing those students who meet the eligibility criteria and are awarded the scholarships.

SATISFACTORY ACADEMIC PROGRESS

Federal regulations which govern the various federal financial aid programs stipulate that in order to continue receiving financial aid funding, a student must maintain "satisfactory academic progress" as defined by the institution. In the definition, the institution must establish a maximum time frame in which the student must earn the degree, and divide the maximum time into increments not to exceed one academic year.

IMPORTANT FINANCIAL AID TERMS

Default: Failure to repay a student loan according to the terms agreed to at the time the promissory note was signed. The school, lender, State and the Federal Government may all take action against a defaulted student in order to recover the money.

Entrance Interview: A counseling session will be required of all first time borrowers at the time they apply for a Stafford loan, advising them of their obligations, rights and responsibilities as borrowers.

Exit Interview: A counseling session borrowers must attend before leaving school. At this session, the school will give the borrower information on the amount owed the amount of monthly repayment, and information regarding deferment, refinancing and loan consolidation options.

Financial Need: The difference between the cost of education (tuition, fees, room, board, books and other related expenses) and the amount the student and his/her family can afford to pay as determined by prescribed formulas used to calculate need from information reported on the aid application.

Promissory Note: A legal document signed by a borrower at the time he/she gets a student loan. It lists the conditions under which the borrowing takes place and the terms under which the borrower agrees to pay back the loan.

Statement of Educational Purpose / Certification Statement on Refunds and Default:

Students are required to sign this statement in order to receive Federal Student Aid. By signing it, the student indicates that he/she does not owe a refund on a Pell Grant or SEOG and is not in default on a Perkins Loan, Stafford Loan, PLUS or SLS Loan. The student is also agreeing to use any student aid received, only for education-related purposes.

Statement of Registration Status: A student who is required to register with the Selective Service must sign a statement indicating he or she has done so before he can receive any Federal Student Aid. This requirement applies to males who were born on or after January 1, 1960, are at least 18, are citizens or eligible non-citizens, and are not currently on active duty in the Armed Forces. (Citizens of the Federated States of Micronesia, the Marshall Islands, or the Trust Territory of the Pacific (Palau) are exempt from registering.)

Alternative Loans: There are private educational loan programs that provide an affordable, effective solution to the financing needs of healthcare students. These loans are non-need-based, and the loan amounts, repayment periods, as well as rates and fees vary. For additional information about the various loan sources, please contact the Office of Financial Aid.

Technical Standards

Introduction:

The educational objective of TUCOP is to prepare students for the practice of pharmacy. Students admitted to TUCOP must therefore have the intellectual, emotional, and physical abilities, with reasonable accommodations as needed for those with disabilities, to acquire the knowledge, behaviors, clinical competencies, and technical skills needed to successfully complete the curriculum and engage in the practice of pharmacy. The ability, with reasonable accommodations for disabilities as needed, to meet the technical standards and educational objectives established by the faculty are essential for fulfillment of the Pharm.D. degree. They are evaluated in all candidates for admission and graduation.

All applicants are held to the same academic and technical standards of admission and training, with reasonable accommodations as needed for students with disabilities. The academic and technical standards established by the faculty require that all TUCOP students possess the cognitive, behavioral, and physical abilities that insure they can complete all aspects of the curriculum.

The technical standards outlined below (“Technical Standards”) are used by the Admissions Committee in conjunction with established academic standards to select students who possess the intelligence, integrity, physical, and personal as well as emotional characteristics necessary to become an effective pharmacist.

The technical standards articulated in this document are for the purposes of completion of the academic and experiential requirements of the College of Pharmacy program, and are no guarantee or assurance of fitness for employment by a third party employer, nor are they a guarantee or assurance for qualification for licensure by any governmental agency, board, or department.

Nothing in this document shall preclude reasonable accommodation of a candidate or student under the Americans with Disabilities Act (ADA). TUCOP will engage in an interactive process with applicants with disabilities to consider their suitability for the program. The College of Pharmacy reserves the right not to admit any applicant who, upon completion of the interactive process, cannot meet the Technical Standards set forth below, with reasonable accommodations.

Those individuals who would constitute a direct threat to the health or safety of others are not considered suitable candidates for admission.

Technical Standards:

The awarding of the Pharm.D. degree signifies that the holder is prepared for entry into the practice of pharmacy. It follows that graduates must have the knowledge and skills to practice and function in a wide variety of settings and situations. Candidates for the Pharm.D. degree must be able to perform specific essential functions that the faculty deem requisite for the practice of pharmacy. These functions fall into several broad categories, including: observation; communication; motor; conceptual, integrative and quantitative; and behavioral and social. Candidates must also have the physical and emotional stamina to function in a competent manner in a setting that may involve heavy workloads and stressful situations.

TUCOP has determined that those individuals who are currently impaired by alcohol or substance abuse are not appropriate as candidates or students in the College of Pharmacy.

Observation: Candidates and students must be able to observe demonstrations and experiments in the basic and pharmaceutical sciences, medical illustrations and models, and computer screens and written and/or printed materials. They must be able to directly and accurately see a patient's physical condition, to obtain a history and perform appropriate physical assessments, and to correctly integrate the information derived from these observations to develop an accurate treatment plan. They must be able to prepare medications for dispensing to patients and observe the activities of technical staff operating under their supervision in accordance with State law. These skills require the functional use of vision and of somatic sensation. They must have the visual acuity to be able to read prescriptions.

Communication: Candidates and students must be able to communicate with, understand, and observe patients in a clinical setting. They must be able to record information accurately and clearly, communicate fluently in and understand the English language, and to communicate effectively and sensitively with patients. Candidates must also be able to communicate effectively with other members of the healthcare team in oral and written form, and in patient care settings in which decisions based upon those communications may be made rapidly. They must have sufficient auditory function to hear verbal or telephonic orders and be able to reduce those orders to writing contemporaneously. They must be able to communicate effectively with and supervise ancillary support staff.

Motor: Candidates and students must possess the motor function sufficient to accurately compound and prepare prescription products for dispensing to patients. They must possess the motor function sufficient to perform basic laboratory tests such as glucose monitoring or finger stick for laboratory testing needed for therapeutic monitoring. They must possess motor function sufficient to be able to administer intramuscular injections. They must possess sufficient manual dexterity to perform aseptic manipulations required for sterile compounding. They must possess motor function sufficient to perform levigation and trituration for extemporaneous compounding. They must be able to use computer-based information systems. They must be able to bend at the knees, bend at the waist, squat, kneel, stand and sit at various times of the day. They must be able to lift a 25 lb weight from the floor and transport that weight a distance of 10 yards across a flat surface.

Interpretative, Conceptual and Quantitative: Candidates and students must have effective and efficient learning techniques and habits that allow mastery of the pharmacy curriculum. They must

be able to learn through a variety of modalities including, but not limited to, classroom instruction, small group activities, individual study, preparation and presentation of reports, and use of computer technology. They must be able to memorize measure, calculate reason, analyze, and synthesize. They must also be able to comprehend spatial relationships and three-dimensional models.

Behavioral and Social Attributes: Candidates and students must understand the legal and ethical aspects of the practice of pharmacy, and function within the guidelines established by the law and by the ethical standards of the pharmacy profession. They must be able to relate to patients and their families, colleagues, and other members of the healthcare team with courtesy, maturity, empathy, and respect for the dignity of individuals. This requires that they place the welfare of their patients foremost, and demonstrate honesty, integrity, dedication, compassion, and nondiscrimination in the care of their patients. They must at all times demonstrate the emotional stability to be able to exercise good judgment, and carry out prompt completion of all of the responsibilities attendant to the care of their patients in a sensitive and effective manner. This sensitivity includes self-examination of personal attitudes, perceptions, and stereotypes in order to avoid potential negative impacts on relationships and patient care. Candidates must be able to adapt to changing environments, display flexibility and professional responsibility to their patients, and to learn to function in an environment of uncertainty, in which changes may occur rapidly and without warning. All of these personal qualities will be assessed during the admissions and educational process.

Program and Curriculum Overview

Program Description and Requirements

The Touro University College of Pharmacy program is a four-year Doctor of Pharmacy program that prepares students for a clinically-oriented, contemporary pharmacy practice. A unique feature of the program is a two-year pharmacy practice or clerkship experience. This enhanced exposure to patients is designed to create a more clinically mature graduate who is more fully prepared to enter pharmacy practice or pursue post-graduate pharmacy residencies, fellowships or graduate work. Other strengths of the program include a teamwork approach to building communication, organization and leadership skills and the embedded use of technology to assist in learning.

Minimum Academic and Course Requirements

All candidates are required to have obtained a Baccalaureate Degree from a regionally accredited institution of higher education prior to the start of mandatory orientation for the Class into which they have been accepted.

Candidates to the College of Pharmacy are required to satisfy the following course and academic requirements:

- 8 semester/12 quarter units of Inorganic Chemistry with lab
- 8 semester/12 quarter units of Organic Chemistry with lab (4 semester units of Biochemistry may be substituted for the second semester of Organic Chemistry)
- 4 semester/6 quarter units of Human Anatomy/Physiology (combined course) with lab
OR one course each of Human Anatomy and Human Physiology with labs
- 4 semester/6 quarter units of Microbiology with lab
- 3 semester units of Calculus

- Prerequisite courses must be completed with a grade of "C" or better prior to the start of mandatory orientation
- Minimum cumulative and science GPA's of 2.75 (Candidates who qualify for secondary applications typically have GPA's substantially higher than 2.75)

Though not required, a Biochemistry course is recommended for additional academic preparation. If available, PCAT scores may be submitted with your PharmCAS application.

Important Note: It is possible to apply, interview, and be accepted into the program without having completed the Bachelor's Degree and/or some prerequisites, provided all requirements, including completion of the Bachelor's Degree, are satisfied prior to the start of the mandatory orientation.

Graduates of Foreign Institutions

The Touro University - California College of Pharmacy accepts applications from graduates of foreign institutions provided they hold either US Citizenship or US Permanent Resident Status at the time of application.

In addition, the College of Pharmacy will not accept foreign transcripts. Transcripts and coursework from foreign institutions must be evaluated by a [recognized evaluation agency](#). Evaluations must be sent directly to PharmCAS and must include semester units and letter grades for each course, as well as a cumulative GPA and, if possible, a science GPA.

All Candidates

Work experience in pharmacy, either paid or volunteer, is encouraged and looked upon favorably by the Committee. The College of Pharmacy does not require standardized examinations (e.g. PCAT or GRE) for entrance into the program, though candidates may submit these scores to supplement their application if they wish. All candidates must hold US Citizenship or US Permanent Resident Status at the time of application. The requirements listed above apply to graduates of foreign institutions. No exceptions are granted.

Advanced Placement (AP) Credit

Touro University - California accepts advanced placement credit as long as such credit appears on the undergraduate transcript and indicates either specific subject credit (e.g. General Chemistry - 4 units) or specific course credit (e.g. Chem 101 - 4 units). General advanced placement credit without such specifications is not accepted.

Graduation Requirements

A student will be recommended for the degree of Doctor of Pharmacy provided the candidate:

1. Has completed at least four years at the College of Pharmacy at Touro University, and all the required courses and clerkships that constitute the curriculum.
2. Is not on probation, has completed all prescribed academic requirements with a cumulative curriculum weighted average of 70% or greater, has no outstanding grade which is incomplete, and has a passing grade for all clinical rotations.

3. Has performed and behaved in a manner which is ethical, professional, and consistent with the practice of Pharmacy.
4. Has complied with all the legal and financial requirements of Touro University California.
5. Attends the graduation ceremony in person, unless special permission has been granted by the Dean of the College of Pharmacy.
6. Has completed the academic requirements within 6 years following matriculation (excluding approved leaves of absence).

Courses and Program Description

The College of Pharmacy's Overall Program Goals

The ultimate goal of our four year curriculum is to prepare our pharmacy graduates for successful careers as members of the pharmacy profession. We strive to achieve educational and program excellence to develop graduates who are caring pharmacy professionals, educated in the current science and practice of pharmacy, and who are able to communicate and work effectively with other health-care professionals. As active learners, they able meet the future challenges of the pharmacy profession in the dynamic healthcare environment, and provide the highest quality preventive and therapeutic healthcare to the public.

Rationale and Objectives for a Two-plus-Two Curriculum

Our curriculum is divided into two major parts: 1) two years of pre-clinical didactic training in the biological and pharmaceutical sciences, as well as Introductory Pharmacy Practice Experiences (IPPE), and 2) two years of clinical training both on and off-site, consisting of Advanced Pharmacy Practice Experiences (APPE). The following description outlines the pre-clinical and clinical years of our curriculum to provide an overview of the program.

The decision to create a 2+2 PharmD curriculum was based upon evidence of a need for increased clinical pharmacy practice experiences for pharmacy graduate. Our aim was to facilitate smoother transition from the academic environment to an effective pharmacy professional. We believe this transition is accomplished by doubling the clinical exposure from the traditional one year to two years, and by enhanced integration of the basic sciences and clinical practice both vertically and horizontally across all 4 years of the PharmD curriculum. At the same time, it is also essential that such a new program retain the integrity and the foundations of the important biological and chemical sciences, e.g., anatomy, Physiology, pathophysiology, medicinal and pharmaceutical chemistry, and pharmacology, upon which clinical competence is based. An additional challenge confronting pharmacy and other healthcare professionals is the incorporation of vast amount of increasingly complex scientific and clinical information in areas such as epidemiology, pathogenesis of human diseases, pharmacogenomics, and advances in preventive and therapeutic strategies. We feel our curriculum succeeds in increasing clinical exposure in years 3 and 4 while it presents a more effective basic science and clinical syllabus within the framework of years 1 and 2.

Organization of Didactic Years 1 and 2 of the PharmD Curriculum

The pre-clinical years of our PharmD program are integrated both vertically and horizontally during the first two years. The subject material is divided into four courses or Tracks that are taught concurrently throughout the four 19-week semesters (the Fall and Spring terms) of

years 1 and 2. The four Tracks are (1) Biological Sciences, (2) Pharmaceutical Sciences, (3) Social, Behavioral and Administrative Sciences, and (4) Clinical Sciences (Pharmacy Practice). At the same time, information presented in each vertically-oriented Track is integrated horizontally (from day to day) by correlating topics pertinent to one particular organ system at a time. The organ systems-based presentation supports and augments the information gathered in each Track.

Our educational philosophy is to encourage acquisition, retention and integration of knowledge within the pharmaceutical sciences, and its application to effective pharmacy practice. To enhance acquisition of those skills and competencies, classes are designed as interactive learning sessions. Each class is typically devoted to a topical lecture, small group activities such as research and discussion, followed by reconvention of the class for group presentations, debates, or other shared exchanges. The combination of our educational philosophy, curricular organization, and interactive learning approach gives our students the foundation they need for successful experiential experiences in years 3 and 4.

To account for the diversity and variability of prerequisite courses, first semester of our program is devoted to foundation courses within each track. Having established a “baseline,” succeeding semesters focus on individual organ-systems, e.g. Musculoskeletal & Dermatology, Gastrointestinal & Liver, Cardiovascular & Renal, etc., in 5 week blocks. Tracks 1 builds students’ knowledge base in each block about the normal system anatomy, physiology and the pathophysiology of diseases affecting it. Track 2 builds knowledge of pharmacology and medicinal chemistry of therapeutic drug groups acting on the body system, and the pharmacokinetics of drug to the system. Track 3 focuses on business, management, and socio-economic aspects of related pharmacy practice. Concurrently, Track 4 teaches the pharmaceutical care of patients with diseases affecting each system. It applies core knowledge, principles, and processes in the clinical setting primarily through presentation of case studies, SOAP exercises, and analysis of therapeutic outcomes. Track 5 focuses on skills and competencies required for practice of the pharmacy profession.

Curriculum Sequence for Year 1 (P1) and Year 2 (P2)

The following Table shows the sequence of topics covered in the first and second years of the curriculum. Each year’s Fall and Spring semester is divided into three 5-week-long “Blocks” that (following the Foundations material) focus on a particular body system. During the 6th week of each Block, the Evaluation Week, a formative-style examination is given in each Track to assess mastery of the material covered.

The 19th week of each semester is devoted to summative assessment of material covered during the semester. The comprehensive assessment is a three part examination referred to as the Triple-Jump Exam, or TJE. The objective of this three segment exam is to evaluate a student’s competencies and overall command of the knowledge base in (1) a closed book exam, with one question relating to each of the four Tracks; (2) an open-book exam in which the same case study is analyzed in greater detail, and finally (3) an OSCE, or Objective Structured Clinical Examination, to evaluate all aspects of professional demeanor.

Curriculum Sequence For Years P1 and P2

| YEAR 1 | P1 - FALL SEMESTER |
|--------------------------------|--|
| BLOCK - A 5 weeks | FOUNDATIONS OF ANATOMY & CELL BIOLOGY |
| Evaluation Week - Block A | |
| BLOCK - B 5 weeks | FOUNDATIONS IN IMMUNITY & PATHOPHYSIOLOGY |
| Evaluation Week - Block B | |
| BLOCK - C 5 weeks | EYES, EARS, NOSE & THROAT |
| Evaluation Week - Block C | |
| Summative Evaluation #1 | |

| YEAR 1 | P1 - SPRING SEMESTER |
|--------------------------------|---|
| BLOCK - A 5 weeks | DISEASES OF THE MUSCULOSKELETAL & DERMATOLOGICAL & RENAL SYSTEMS |
| Evaluation Week - Block A | |
| BLOCK - B 5 weeks | PATHOPHYSIOLOGY OF GI, LIVER & ABDOMINAL DISEASES |
| Evaluation Week - Block B | |
| BLOCK - C 5 weeks | CARDIOVASCULAR DISEASE |
| Evaluation Week - Block C | |
| Summative Evaluation #2 | |

| YEAR 2 | P2 - FALL SEMESTER |
|--------------------------------|---|
| BLOCK - A 5 weeks | PATHOPHYSIOLOGY OF THE RESPIRATORY & CENTRAL NERVOUS SYSTEMS |
| Evaluation Week - Block A | |
| BLOCK - B 5 weeks | PATHOPHYSIOLOGY OF THE CENTRAL NERVOUS SYSTEM |
| Evaluation Week - Block B | |
| BLOCK - C 5 weeks | PATHOPHYSIOLOGY OF THE ENDOCRINE SYSTEM |
| Evaluation Week - Block C | |
| Summative Evaluation #3 | |

| YEAR 2 | P2 - SPRING SEMESTER |
|-----------------------------|---|
| BLOCK - A 5 weeks | PATHOPHYSIOLOGY OF THE REPRODUCTIVE SYSTEM |
| Evaluation Week - Block A | |
| BLOCK - B 5 weeks | HEMATOLOGY |
| Evaluation Week - Block B | |
| BLOCK - C 5 weeks | ADVANCED TOPICS & REVIEW |
| Evaluation Week - Block C | |

Summative Evaluation #4

General Class Schedules for P1 and P2 Students

The following two Tables show the courses for the first year (P1) students and second year (P2) students respectively. Over the period of the semester, the total of 20 credits each semester is divided among the courses in accordance with the class contact hours described above to comply with the ACPE Standards 2007. The course credit hours indicate the corresponding weight given to each course in calculating the cumulative GPA. The small tables identify the Departments or Tracks, Course titles, PHRM catalog numbers, and number of credits carried by each of the four courses each semester.

| Track No. | Course Title | FALL SEMESTER | | SPRING SEMESTER | | ~ % Total Credits |
|--------------|--|---------------|---------|-----------------|---------|-------------------|
| | | PHRM | Credits | PHRM | Credits | |
| 1 | BIOLOGICAL SCIENCES | 601 | 5 | 605 | 5 | 20 |
| 2 | PHARMACEUTICAL SCIENCES | 602 | 7 | 606 | 6 | 33 |
| 3 | SOCIAL, BEHAVIORAL & ADMINISTRATIVE SCIENCES | 603 | 3 | 607 | 4 | 17 |
| 4 | CLINICAL SCIENCES | 604 | 5 | 608 | 5 | 25 |
| | INTRODUCTORY PHARMACY PRACTICE EXPERIENCES | 620 | 1 | 621 | 1 | 5 |
| Total | | | 21 | | 21 | 100 |

| Track No. | Course Title | FALL SEMESTER | | SPRING SEMESTER | | ~ % Total Credits |
|--------------|--|---------------|---------|-----------------|---------|-------------------|
| | | PHRM | Credits | PHRM | Credits | |
| 1 | BIOLOGICAL SCIENCES | 609 | 5 | 613 | 5 | 20 |
| 2 | PHARMACEUTICAL SCIENCES | 610 | 6 | 614 | 7 | 33 |
| 3 | SOCIAL, BEHAVIORAL & ADMINISTRATIVE SCIENCES | 611 | 4 | 615 | 3 | 17 |
| 4 | CLINICAL SCIENCES | 612 | 5 | 616 | 5 | 25 |
| | INTRODUCTORY PHARMACY PRACTICE EXPERIENCES | 622 | 1 | 623 | 1 | 5 |
| Total | | | 21 | | 21 | 100 |

DESCRIPTION OF DIDACTIC COURSES

YEAR 1 - FALL SEMESTER

PHRM 601 - Biological Sciences I. This 5 unit course presents the essentials of gross anatomy, physiology, pathophysiology, microbiology and immunology for the first year pharmacy student. Emphasis is placed upon the principles and characteristics of the pathophysiology of body systems, and the concept of altered health by comparing normal and abnormal states of those systems. The course provides the foundation for subsequent biological sciences (Track 1) courses in which specific disease states are taught within a vertically integrated organ-system-based framework. The course has the following learning objectives.

1. Become familiar with human body systems and the maintenance of homeostasis.
2. Learn basic anatomy, cell biology and physiology of cells and tissues.
3. Explain and show the principles by which microbial agents cause human disease.

4. Describe components, organization, and activities of inflammatory and immune responses.
5. Understand common concepts and terms of medical terminology.
6. Learn about pathophysiological conditions of the eyes, ears, nose and throat.

PHRM 602 - Pharmaceutical Sciences I. This 7-unit course introduces the pharmacy student to the principles of medicinal chemistry, pharmacology, and pharmaceutics. The purpose is to learn the basic principles that underlie these pharmaceutical sciences, and include; principles of functional group chemistry, pH and ionic equilibria, pharmacodynamics, pharmacokinetics, drug metabolism, pharmaceutical calculations, pharmaceutical dosage forms, formulation science and other fundamental principles of physical pharmacy. This may also be a 6-unit course. The course has the following learning objectives:

1. Describe basic concepts of pharmacodynamics & pharmacokinetics.
2. Identify functional groups commonly found on drug molecules, determine the influence of pH on their ionization state at physiologically relevant pH values, and the mechanism by which such groups contribute to the pharmacological and toxicological effects of a drug.
3. Be familiar with commonly used dosage forms, and understand the relationship between chemical and physical properties of drugs as applied to drug formulation.
4. To understand the concepts of chemical kinetics and drug stability.
5. Understand basic pharmaceutical calculations and their application to dosage form design and pharmacy practice.
6. Understand the principles of autonomic pharmacology.
7. Identify the major classes of antimicrobial drugs in current use, their mechanism of action, adverse effects, pharmacokinetics, and therapeutic indications.

PHRM 603 - Social, Behavioral & Administrative Sciences I. This 3-unit course familiarizes pharmacy students with the overall health care environment within which the practice of pharmacy takes place. This overview includes the social, governmental, cultural, legal, and health care structures that impact upon patients, their families, pharmacists and their colleagues. The course imparts the importance of understanding those various influences that determine current and future professional life. Students will be encouraged to expand critical thinking skills, leadership abilities, and communication skills that will support professional and personal success. The course will introduce complex areas of health care delivery from public policy perspectives. Lectures and classroom discussion will provide interdisciplinary approaches to difficult political, social and economic issues that confront health practitioners and the public. This may also be a 4-unit course. The course has the following learning objectives:

1. Understand the pharmacists' professional role as a member of the healthcare team.
2. Develop communication skills to interact effectively with patients, colleagues, pharmacists and other healthcare professionals.
3. Demonstrate an understanding of state and federal pharmacy laws, including pharmacist's responsibility and limits.
4. Understand the issues behind public health principles.
5. Discuss basic historical trends in American Health Care and the development of the practice of pharmacy.
6. Compare and contrast types of health care delivery systems that are the basis of modern pharmacy practice.
7. Explain health conditions in relation to disease patterns and causation theories.
8. Understand the role and function of various health care practitioners.

9. Demonstrate an understanding of the various methods of financing health care delivery and the implications for risk sharing, cost containment, access, quality and potential for improvement.
10. Review various perspectives on the future of health care delivery systems, their modification, change and reform including financial and other concerns.
11. Identify the major stakeholders in health care.
12. Discuss the health care issues and pharmaceutical care needs of special population groups.

PHRM 604 - Clinical Sciences I. This 5-unit course introduces the pharmacy student to clinical assessment skills, medication information acquisition, analysis and evaluation, geriatrics, clinical skills and knowledge related to providing immunizations. An Introductory Pharmacy Practice Experience (IPPE) unit on immunizations is part of this course. The overall objective is to provide the student with initial and progressive pharmacy practice skills through active learning involving direct contact with patients, health professionals and the public, and with emphasis on health promotion and disease prevention activities. The course has the following learning objectives:

1. Identify the pharmacist's professional role as a member of the healthcare team.
2. Describe the CDC guidelines for universal precautions and disease prevention.
3. Demonstrate competency with immunization techniques.
4. Discriminate among health care resources with respect to accuracy and credibility.
5. Recognize and correctly spell the Top 100 drugs by generic name, brand name and general therapeutic class and controlled substance schedule, when applicable.
6. Distinguish between the various types of research articles and critically evaluate these resources.
7. Integrate drug information skills to identify credible resources for a further understanding of alternative medicines.
8. Understand the different substances patients may abuse and the physiological and psychological effects of these drugs.
9. Become cognizant of the common medical language used by clinicians to characterize psychologically ill patients.
10. Become familiar with the fundamentals of interpreting clinical laboratory test results.
11. Become familiar with physical assessments and procedures.

YEAR 1 - SPRING SEMESTER

PHRM 605 - Biological Sciences II. This 5 unit course will begin to address an important requirement for pharmacy students; that they are educated and knowledgeable in the pathophysiology of human diseases. In course PHRM 605, significant diseases affecting three major human organ-body systems will be addressed: (1) Musculoskeletal, Dermatological and Renal (Block A); (2) Gastrointestinal, Liver, and other Abdominal (Block B); and (3) Cardiovascular (Block C). Major diseases involving each of these systems will be presented with regard to their epidemiology, pathogenesis, pathology, clinical signs and symptoms, testing and diagnosis as well as the scientific basis for treatment and prevention. Basic anatomy and physiology of specific systems will be reviewed prior to the discussion of disease states. A combination of didactic lecture, small group discussion and problem-based learning will be used for presentation of material. Attention will be paid to the IOM major chronic conditions that affect the relevant organ-systems. The course has the following learning objectives:

1. Understand and become knowledgeable of anatomical structure and normal physiological function within the cardiovascular & renal, musculoskeletal, and gastrointestinal/liver organ systems.
2. Understand and become knowledgeable of pathological states within the above organ systems with respect to their epidemiology, pathogenesis, disease presentation, diagnostics, and prevention/therapeutics.
3. Appreciate the mechanisms by which pharmacists may contribute as healthcare professionals to the management of patients experiencing one or more of the disease states discussed.

PHRM 606 - Pharmaceutical Sciences II. This 6 unit course introduces the pharmacy student to the principles of medicinal chemistry, pharmacology, and pharmaceuticals. The purpose is to learn the basic principles that underlie these pharmaceutical sciences, and includes; pharmacodynamics, pharmaco-kinetics and drug metabolism, pharmaceutical calculations, principles of functional group chemistry and physical pharmacy. The course has the following learning objectives:

1. Describe basic concepts of pharmacodynamics & pharmacokinetics.
2. Identify functional groups commonly found on drug molecules, determine the influence of pH on their ionization state at physiologically relevant pH values, and the mechanism by which such groups contribute to the pharmacological and toxicological effects of a drug.
3. Be familiar with commonly used dosage forms, and understand the relationship between chemical and physical properties of drugs as applied to drug formulation.
4. To understand the concepts of chemical kinetics and drug stability.
5. Understand basic pharmaceutical calculations and their application to dosage form design and pharmacy practice.
6. Understand the principles of autonomic pharmacology.
7. Identify the major classes of antimicrobial drugs in current use, their mechanism of action, adverse effects, pharmacokinetics, and therapeutic indications.

PHRM 607 - Social, Behavioral and Administrative Sciences II. This course of four (4) units is taught in three blocks that will familiarize the pharmacy students with the overall health care environment within which the practice of pharmacy takes place. This overview includes the social, governmental, cultural, legal, and health care structures that impact upon patients, their families, pharmacists and their colleagues. The course imparts the importance of understanding those various influences that determine current and future professional life. Students will be encouraged to expand critical thinking skills, leadership abilities, and communication skills that will support professional and personal success. The course will introduce complex areas of health care delivery from public policy perspectives. Lectures and class room discussion will provide interdisciplinary approaches to difficult political, social and economic issues that confront health practitioners and the public. The focus of PHRM 607 will be on special issues that impact on some, but not all, identifiable health care population, comparison of the domestic health care delivery and financing system with those of other selected nations. In addition issues of drug manufacturing, delivery and public policy will be examined through a review of the operations of the FDA and the development of policy analysis skills. The law portion will focus on state and federal regulations governing Controlled Substances. The course has the following learning objectives:

1. Understand the pharmacists' professional role as a member of the healthcare team.
2. Develop communication skills to interact effectively with patients, colleagues, pharmacists and other healthcare professionals.

3. Demonstrate an understanding of state and federal pharmacy laws, including pharmacist's responsibility and limits, particularly surrounding Controlled Substances
4. Understand the issues behind public health principles.
5. Discuss basic historical trends in American Health Care and the development of the practice of pharmacy.
6. Compare and contrast types of health care delivery systems that are the basis of modern pharmacy practice.
7. Understand the development of the health care financing system as it impacts on the practice of pharmacy and the pricing and marketing of health care products.
8. Explain health conditions in relation to disease patterns and causation theories.
9. Understand the role and function of various health care practitioners.
10. Demonstrate an understanding of the various methods of financing health care delivery and the implications for risk sharing, cost containment, access, quality and potential for improvement.
11. Review various perspectives on the future of health care delivery systems, their modification, change and reform including financial and other concerns.
12. Identify the major stakeholders in health care.
13. Compare and Contrast the health care delivery systems of various countries.
14. Explain the differences in health outcomes between the various health care models of other countries.
15. Discuss the health care issues and pharmaceutical care needs of special population groups.
16. Be able to evaluate the various health policy initiatives that influence the health care environment.
17. Examine and evaluate the advantages and disadvantages of other the health care delivery systems of some other nations.
18. Be able to cumulatively integrate the knowledge from this course with information and skills acquired in prior studies.

PHRM 608 - Clinical Sciences II. In this 5 unit course, the role of the pharmacist in management of patients with significant diseases affecting the following major human organ-body systems will be addressed: (1) Musculoskeletal and Dermatological (Block A); (2) Gastrointestinal, Liver, and other Abdominal (Block B); and (3) Cardiovascular (Block C). These are the same three Block topics covered in PHRM 605 and PHRM 606, such that there is coordination in the presentation of information in the pathophysiology, pharmacology, medicinal and pharmaceutical chemistry, and pharmacy practice tracks. This consistency of topics presented helps achieve reinforcement and enhance comprehension of the elements of practice and the larger overall concept of translational education from "bench to bedside." The course has the following learning objectives:

1. Understand the pharmacists' professional role as a member of the healthcare team in management of patients with diseases affecting cardiovascular, renal, gastrointestinal, liver, musculoskeletal and dermatological systems.
2. Continue to develop communication skills to interact effectively with patients, colleagues, pharmacists and other healthcare professionals for disease management.
3. Understand, and apply wherever applicable, knowledge of the different therapeutic modalities utilized for diseases affecting the above organ systems.
4. Appreciate the differences and needs of special patient populations (e.g. geriatric & pediatric) with respect to diseases affecting the above organ systems.
5. Understand the basis for prevention of diseases affecting the above organ systems.
6. Obtain a thorough knowledge of the impact of OTC products in facilitating or interfering with therapeutics in the above disease states.

YEAR 2 - FALL SEMESTER

PHRM 609 - Biological Sciences III. This 5 unit course will continue to address an important requirement for pharmacy students; that they are educated and knowledgeable in the pathophysiology of human diseases. In course PHRM 609, significant diseases affecting these major human organ-body systems will be addressed: (1) Respiratory and Central Nervous System (CNS) (Block A); (2) CNS (Block B); and (3) Endocrine (Block C). Major diseases involving each of these systems will be presented with regard to their epidemiology, pathogenesis, pathology, clinical signs and symptoms, testing and diagnosis as well as the scientific basis for treatment and prevention. Basic anatomy and physiology of specific systems will be reviewed along with discussion of common disease states. A combination of didactic lecture, small group discussion and problem-based learning will be used for presentation of material. Attention will be paid to the IOM major chronic conditions that affect the relevant organ-systems. The course has the following learning objectives:

1. To understand and become knowledgeable of anatomical structure and normal physiological function within the above systems; respiratory, CNS, and endocrine.
2. To understand and become knowledgeable of pathological states within the above organ systems with respect to epidemiology, pathogenesis, disease presentation, diagnostics, and prevention/therapeutics.
3. To appreciate the mechanisms by which pharmacists may contribute as healthcare professionals to the management of patients experiencing one or more of the disease states discussed.

PHRM 610 - Pharmaceutical Sciences III. This 6 unit course introduces the pharmacy student to the principles of medicinal chemistry, pharmacology, and pharmaceuticals. The purpose is to learn the basic principles that underlie these pharmaceutical sciences, and includes: pharmacodynamics, pharmacokinetics and drug metabolism, pharmaceutical calculations, principles of functional group chemistry and physical pharmacy. These will be presented in the context of the three segments of this course: (1) Respiratory and CNS (Block A); (2) CNS (Block B); and (3) Endocrine (Block C). The course has the following learning objectives:

1. Describe basic concepts of pharmacodynamics & pharmacokinetics.
2. Identify functional groups commonly found on drug molecules, determine the influence of pH on their ionization state at physiologically relevant pH values, and the mechanism by which such groups contribute to the pharmacological and toxicological effects of a drug.
3. Be familiar with commonly used dosage forms, and understand the relationship between chemical and physical properties of drugs as applied to drug formulation.
4. To understand the concepts of chemical kinetics and drug stability.
5. Understand basic pharmaceutical calculations and their application to dosage form design and pharmacy practice.
6. Understand the principles of autonomic pharmacology.
7. Identify the major classes of antimicrobial drugs in current use, their mechanism of action, adverse effects, pharmacokinetics, and therapeutic indications.

PHRM 611 - Social, Behavioral & Administrative Sciences III. This course continues to lay the ground work to understand the role of economics and epidemiology as they relate to pharmacy. Specific topics related to Pharmacoeconomics will include Cost-of-illness studies, Cost-Benefit analysis, Cost-Effectiveness Analysis, Cost-Utility Analysis, Decision Analysis and Health-related Quality of Life. Topics related to Pharmacoepidemiology will include Clinical Trials, Cohort Studies, Case-Control Studies, Survey Research And Evidence-Based Medicine. In addition, basic principles of statistics will be taught to enable the student to evaluate the medical literature. The class will also include a brief survey of potential professional and business liabilities for the pharmacist. The course has the following learning objectives:

1. Understand the different phases of drug development.
2. Understand the drug approval process by the FDA.
3. Understand the basic principles of Pharmacoeconomics and Pharmacoepidemiology.
4. Differentiate between epidemiologic study designs and recognize their strengths and weaknesses.
5. Differentiate between the different Pharmacoeconomic study designs and recognize their strengths and weaknesses.
6. Analyze a scientific report as to the appropriateness of the research design and analysis and interpretation of data.
7. Understand the application of Pharmacoeconomics to drug therapy decisions and formulary management.
8. Understand health-related quality of life and describe its role in patient outcomes research.
9. Determine the applicability of the results of a study to clinical practice.
10. Understand how evidence-based research information is used in pharmacy practice.

Objectives for law:

11. Identify potential sources of liability.
12. Identify the elements of negligence.
13. Identify means to decrease or mitigate liability.

PHRM 612 - Clinical Sciences III. In this 5 unit course, the pharmacist's role in management of patients with significant diseases affecting the following major human organ-body systems will be addressed: (1) Respiratory and CNS (Block A); (2) CNS [Neurologic and Psychiatric] (Block B); and (3) Endocrine Systems (Block C). All aspects of clinical management are covered from patient presentation to the pharmacist's response. Cases will be 'SOAP'ed" (written up in terms of their Subjective, Objective, Assessment, and Plan). The exercises are reinforced in small group activities and in practice sessions for OSCEs (Objective, Subjective Clinical Examinations). The course has the following learning objectives:

1. Understand the pharmacist's professional role as a member of the healthcare team in management of patients with diseases affecting respiratory, CNS, and endocrine systems.
2. Continue to develop communication skills to interact effectively with patients, colleagues, pharmacists and other healthcare professionals for disease management.
3. Understand, and apply wherever applicable, knowledge of the different therapeutic modalities utilized for diseases affecting the above organ systems.
4. Appreciate the differences and needs of special patient populations (e.g. geriatric & pediatric) with respect to diseases affecting the above organ systems.
5. Understand the basis for prevention of diseases affecting the above organ systems.
6. Obtain a thorough knowledge of the impact of OTC products in facilitating or interfering with therapeutics in the above disease states.

YEAR 2 - SPRING SEMESTER

PHRM 613 - Biological Sciences IV. This 5 unit course will continue to address an important requirement for pharmacy students; that they are educated and knowledgeable in the pathophysiology of human diseases. In course PHRM613, significant diseases affecting these major human organ-body systems will be addressed: (1) Reproductive System (Block A); (2) Hematology (Block B); and (3) Advanced Topics and Review (Block C). Major diseases involving each of these systems will be presented with regard to their epidemiology, pathogenesis, pathology, clinical signs and symptoms, testing and diagnosis as well as the scientific basis for treatment and prevention. Basic anatomy and physiology of specific systems will be reviewed along with discussion of common disease states. A combination of didactic lecture, small group discussion and problem-based learning will be used for presentation of material. Attention will be paid to the IOM major chronic conditions that affect the relevant organ-systems. The course has the following learning objectives:

1. To understand and become knowledgeable of anatomical structure and normal physiological function within the above systems; reproductive tract and eyes, ears, nose, and throat.
2. To understand and become knowledgeable of pathological states within the above organ systems with respect to epidemiology, pathogenesis, disease presentation, diagnostics, and prevention/therapeutics.
3. To appreciate the mechanisms by which pharmacists may contribute as healthcare professionals to the management of patients experiencing one or more of the disease states discussed.

PHRM 614 - Pharmaceutical Sciences IV. This 7 unit course introduces the pharmacy student to the principles of medicinal chemistry, pharmacology, and pharmaceuticals. The purpose is to learn the basic principles that underlie these pharmaceutical sciences, and includes; pharmacodynamics, pharmacokinetics and drug metabolism, pharmaceutical calculations, principles of functional group chemistry and physical pharmacy. The course has the following learning objectives:

1. Describe basic concepts of pharmacodynamics & pharmacokinetics.
2. Identify functional groups commonly found on drug molecules, determine the influence of pH on their ionization state at physiologically relevant pH values, and the mechanism by which such groups contribute to the pharmacological and toxicological effects of a drug.
3. Be familiar with commonly used dosage forms, and understand the relationship between chemical and physical properties of drugs as applied to drug formulation.
4. To understand the concepts of chemical kinetics and drug stability.
5. Understand basic pharmaceutical calculations and their application to dosage form design and pharmacy practice.
6. Understand the principles of autonomic pharmacology.
7. Identify the major classes of antimicrobial drugs in current use, their mechanism of action, adverse effects, pharmacokinetics, and therapeutic indications.

PHRM 615 - Social, Behavioral & Administrative Sciences IV. This course will lay the ground work to understand the fundamentals of management principles, measurement tools, strategies, and philosophies as they relate to pharmacy. Specific topics related to management will include team dynamics, span of control, effectiveness, specialization, measurement. The class will also include a brief survey of medical ethics for the pharmacist and a review of

pharmacy law prior to commencing clinical rotations. The course has the following learning objectives:

1. To identify and describe the basic principle management functions of planning, directing, organizing, and controlling.
2. To identify and describe the various components of change management.
3. To be able to read and interpret business reports
4. To be able to apply market strategies
5. To identify where and when an operation may benefit from enhanced informatics
6. To use various tools to monitor, manage, and improve performance
7. To describe how pharmacy fits into the complex scheme of organized healthcare, and how to optimize relationships in such an organization to achieve results
8. To describe how to manage a project
9. To be able to analyze systems, to work in groups to identify how the system may fail, and to design improved systems
10. To examine how pharmacy integrates into larger macro systems outside of an organized setting.
11. To identify tools and resources at your disposal for support in areas outside of your area of expertise
12. To discuss contemporary ethical issues involving pharmacy.
13. To compare and contrast what may be ethical vs. legal, and the potential liabilities of each.
14. To review the laws governing pharmacy as a review before commencing clinical rotations.

PHRM 616 - Clinical Sciences IV. In this 5 unit course, the role of the pharmacist in management of patients with significant diseases affecting the following major human organ-body systems will be addressed: (1) Reproductive System (Block A); (2) Hematology (Block B); and (3) Advanced Topics and Review (Block C). The course has the following learning objectives:

1. Understand the pharmacist's professional role as a member of the healthcare team in the management of patients with diseases affecting reproductive, Eyes-Ears-Nose-Throat (ENT) and respiratory systems; including: women's and pediatric health, sexually transmitted diseases, urinary tract infections, viral infections (HIV and hepatitis), opportunistic and fungal infections, respiratory tract infections, other infectious disease syndromes and oncologic disorders.
2. Continue to develop communication skills to interact effectively with patients, colleagues, pharmacists and other healthcare professionals for disease management.
3. Understand, and apply wherever applicable, knowledge of the different therapeutic modalities utilized for diseases affecting the above organ systems, patient populations and infectious disease syndromes.
4. Appreciate the differences and needs of special patient populations (e.g. geriatric, pediatric, cancer) with respect to diseases affecting the above organ systems and infectious disease syndromes.
5. Understand the basis for prevention of diseases affecting the above organ systems and ID syndromes.
6. Obtain a thorough knowledge of the impact of OTC products in facilitating or interfering with therapeutics in the above disease states.
7. Understand the pharmacist's role of medication management through application of clinical pharmacokinetics and pharmacodynamics. Understand the pharmacist's role in management of chemotherapy and supportive care of the cancer patient.
8. Identify strategies for reducing the potential for medication errors in various pharmacy practice settings.

9. Recognize components of an effective quality assurance program.
10. Appreciate the unique and emerging roles for the pharmacist as a member of the healthcare team.

****Specific student learning goals will be outlined for each topic during lecture and/or via a study guide****

In summary, the **didactic curriculum during the first two years of the PharmD program** is organized and presented as follows. The introductory clinical practice course each semester is described in the next section.

YEAR 1

FALL SEMESTER

- PHRM 601 - Biological Sciences I - 5-unit course
- PHRM 602 - Pharmaceutical Sciences I - 7-unit course
- PHRM 603 - Social, Behavioral & Administrative Sciences I - 3-unit course
- PHRM 604 - Clinical Sciences I - 5-unit course

SPRING SEMESTER - The courses continue

- PHRM 605 - Biological Sciences II - 5-unit course
- PHRM 606 - Pharmaceutical Sciences II - 6-unit course
- PHRM 607 - Social, Behavioral & Administrative Sciences II - 4-unit course
- PHRM 608 - Clinical Sciences II - 5-unit course

YEAR 2

FALL SEMESTER - The courses continue

- PHRM 609 - Biological Sciences III - 5-unit course
- PHRM 610 - Pharmaceutical Sciences III - 6-unit course
- PHRM 611 - Social, Behavioral & Administrative Sciences III - 4-unit course
- PHRM 612 - Clinical Sciences III - 5-unit course

SPRING SEMESTER - The courses continue

- PHRM 613 - Biological Sciences IV - 5-unit course
- PHRM 614 - Pharmaceutical Sciences IV - 7-unit course
- PHRM 615 - Social, Behavioral & Administrative Sciences IV - 3-unit course
- PHRM 616 - Clinical Sciences IV - 5-unit course

PHRM 600-A through PHRM 600-E - Independent Study

(1-5 units)

- PHRM 600-A Independent Study 1 (1 unit)
- PHRM 600-B Independent Study 2 (2units)
- PHRM 600-C Independent Study 3 (3 units)
- PHRM 600-D Independent Study 4 (4 units)
- PHRM 600-E Independent Study 5 (5 units)

This elective course is designed to offer students the opportunity to pursue academic interests in partnership with a College of Pharmacy faculty member. Students interested in Independent Study will work with a faculty member to develop a contract that outlines the work to be pursued, a timetable, the basis for grade determination and the outcomes expected; for example, a paper

ready to be submitted for publication. The contract must be signed by the faculty member and the student and submitted to the appropriate department chair prior to the start of the course.

DESCRIPTION OF CLINICAL COURSES

PHARMACY PRACTICE EXPERIENCES: IPPEs AND APPEs

The experiential component of the curriculum is designed to allow students the opportunity to practice using the knowledge, skills, and attitudes necessary to be competent pharmacists in an actual pharmacy setting. The experiential program is divided into two parts which have increasing levels of responsibility and clinical maturity: the Introductory Pharmacy Practice Experiences (IPPE) and the Advanced Pharmacy Practice Experiences (APPE).

INTRODUCTORY PHARMACY PRACTICE EXPERIENCES (IPPEs) – TRACK 5

IPPE experiences are integrated into the Pharmacy Practice Track 5 during years 1 and 2. Students spend approximately six hours per week on this track each semester. The IPPEs include the development of clinical, communication, and counseling skills. P1 students are placed in community and hospital pharmacies with preceptors whom they will shadow. As part of the IPPE, students are required to keep a portfolio containing descriptions and reflections of these experiences. Their experiences are integrated into the didactic portion of the curriculum (Tracks 1, 2 and 3). Students not only acquire new knowledge relevant to their education, but also become able to integrate classroom knowledge with knowledge gleaned from their practice experience. As part of the Pharmacy Practice Track 4, students regularly come together in small groups for discussion, reinforcement, reflection, and assessment.

PHRM 620 - IPPE I. Upon successful completion of this Introductory Pharmacy Practice Experience (IPPE), the student will be able to:

1. Describe the responsibilities of a community pharmacist.
2. Describe the use of technology in a community pharmacy.
3. Identify drug information resources utilized by the pharmacist when providing counseling to patients, families and/or other members of the healthcare team.
4. Describe the pharmacist-patient relationship.
5. Identify if a patient is an appropriate candidate for receiving FluMist®.
6. Describe the procedures involved when administering FluMist®.
7. Describe effective marketing strategies used to promote pharmacy patient care services.
8. Demonstrate communication skills and professionalism while interacting with patients and other healthcare providers.

PHRM 621 - IPPE II. Upon successful completion of this Introductory Pharmacy Practice Experience (IPPE) course, the student pharmacist will be able to:

1. Assess a patient, considering disease states, current medications, special population issues and other pertinent medical history, to determine if treatment is needed.
2. Provide appropriate nonprescription and/or nondrug recommendations, or referral to PCP, when necessary.
3. Analyze the pharmacist's role with respect to assisting patients with OTC/Self-Care products.
4. Demonstrate patient counseling communication skills while assisting patients.

5. Demonstrate communication skills and professionalism while interacting with patients and other healthcare providers.
6. Organize pertinent patient data into clinically applicable SOAP format.

PHRM 622 - IPPE III. Upon successful completion of this Introductory Pharmacy Practice Experience (IPPE), the student will be able to:

1. Describe the various means of distribution for drugs and pharmaceuticals in an acute care setting, which may include, but are not limited to, unit-dose cart fill, automated drug dispensing cabinet, floor stock, and distribution from a satellite pharmacy.
2. Describe the roles of healthcare professionals and ancillary personnel in an institutional setting. Personnel may include, but are not limited to, pharmacists, pharmacy technicians, physicians, registered nurses, LVNs, medical assistants, ward/unit clerks, respiratory therapists, etc.
3. Describe the control mechanisms involved in the dispensing of CSA controlled substances in an acute care setting.
4. Describe the controls required for extemporaneous unit-dose packaging.
5. Identify the drug storage standards required by the Joint Commission on Accreditation for Healthcare Organizations (JCAHO), Title 22, and other state or federal regulations.
6. Describe quality improvement strategies and error reduction programs used to minimize drug errors in the institutional setting.
7. Describe the roles of the various members of the healthcare team involved in community pharmacy operations.
8. Describe/demonstrate the procedures involved in processing and dispensing new and refill prescriptions, utilizing all medication safety and error prevention checkpoints.
9. Describe the workflow process, emphasizing checkpoints for error prevention.
10. Describe the techniques used to effectively counsel patients on a prescription; explain how to assess a patient's understanding and compliance.
11. Demonstrate professionalism and effective communication skills when assisting patients with over-the-counter medications; identify appropriate product(s) to recommend, as well as situations that require a physician referral.
12. Further develop student professionalism and communication skills through interactions with healthcare professionals.

PHRM 623 - IPPE IV. Upon successful completion of this Introductory Pharmacy Practice Experience (IPPE), the student will be able to:

1. Describe the various means of distribution for drugs and pharmaceuticals in an acute care setting, which may include, but are not limited to, unit-dose cart fill, automated drug dispensing cabinet, floor stock, and distribution from a satellite pharmacy.
2. Describe the roles of healthcare professionals and ancillary personnel in an institutional setting. Personnel may include, but are not limited to, pharmacists, pharmacy technicians, physicians, registered nurses, LVNs, medical assistants, ward/unit clerks, respiratory therapists, etc.
3. Describe the control mechanisms involved in the dispensing of CSA controlled substances in an acute care setting.
4. Describe the controls required for extemporaneous unit-dose packaging.
5. Identify the drug storage standards required by the Joint Commission on Accreditation for Healthcare Organizations (JCAHO), Title 22, and other state or federal regulations.
6. Describe quality improvement strategies and error reduction programs used to minimize drug errors in the institutional setting.

7. Describe the roles of the various members of the healthcare team involved in community pharmacy operations.
8. Describe/demonstrate the procedures involved in processing and dispensing new and refill prescriptions, utilizing all medication safety and error prevention checkpoints.
9. Describe the workflow process, emphasizing checkpoints for error prevention.
10. Describe the techniques used to effectively counsel patients on a prescription; explain how to assess a patient's understanding and compliance.
11. Demonstrate professionalism and effective communication skills when assisting patients with over-the-counter medications; identify appropriate product(s) to recommend, as well as situations that require a physician referral.
12. Further develop student professionalism and communication skills through interactions with healthcare professionals.

The IPPE component of the first two + years of the PharmD program is summarized here:

YEAR 1

FALL SEMESTER

PHRM 620 - IPPE I - 1-unit course - Percent Grade

SPRING SEMESTER

PHRM 621 - IPPE II - 1-unit course - Percent Grade

YEAR 2

FALL SEMESTER

PHRM 622 - IPPE III - 1-unit course - Percent Grade

SPRING SEMESTER

PHRM 623 - IPPE IV - 1-unit course - Percent Grade

YEAR 3

FALL SEMESTER

The Community Pharmacy Practice Rotation is also considered and IPPE - Percent Grade

ADVANCED PHARMACY PRACTICE EXPERIENCES (APPES)

The Pharmacy Practice curriculum continues in the P3 year with two Clinical Callback courses - Clinical Sciences V and VI (PHRM 701 and 702). In the P3 and P4 years it also includes seven required clerkships (PHRM 703 - PHRM 709) and four elective clerkships (PHRM 800 series), all clerkships being six weeks in length. The seven required clerkships include Institutional Pharmacy Practice (1), Community Pharmacy Practice (2, one of which is an IPPE), Acute Care Practice (2), and Ambulatory Care Practice (2). The following paragraphs describe these rotations, and the graphic afterwards shows schematically how these core rotations are organized from a sequential or developmental perspective.

PHRM 702A . Clinical Sciences V. This 2-unit course is given in the P3 Spring semester and consists of topics in clinical pharmacy practice. Presentations will be split between Pharmacy

Clinical Faculty and Pharmacy students who are participating in APPEs in year 3 and 4. Student presentations will be based on various topics related to the pharmacotherapy of the diseases. The textbook for the course will be Schwinghammer's "Pharmacotherapy Casebook." Upon completion of this course, the student will be able to:

1. Give an effective powerpoint case-based presentation and discussion to colleagues and faculty.
2. Provide a 15-minute presentation and 5-minute answer session. The presentation must contain goals and objective, a case discussion, and a five-question multiple choice quiz.
3. Work with 2 or 3 other student colleagues in giving a case-based presentation. The student team is expected to work with their assigned preceptor.
4. Answer questions posed by the Pharmacotherapy Casebook.
5. Provide information to the class in a timely manner. (Distribute the above items and any other handout materials or reading materials to the course coordinator 2 days prior to the date of the presentation for the purpose of posting on Bb.
6. Student attendees (either live or on WebEx) will be called upon to answer questions from the presenter or the faculty.

PHRM 702B. Clinical Sciences VI. This 2-unit course is given in the Fall Semester and is the same as described in PHRM 702A.

PHRM 703 - APPE Institutional Pharmacy Practice I. This IPPE will serve as the introduction to the institutional practice in the acute care environment. Prerequisites are completion of all required didactic coursework and IPPE Institutional Practice. The Institutional Practice IPPE shall include experience in most aspects of drug distribution commonly found in an acute care setting, such as unit dose, automated drug cabinets, and procedures for handling controlled substances. This rotation shall also familiarize the student with common accreditory and regulatory standards as applied in the inpatient setting. Upon completion of this IPPE, the student will be able to:

1. Become familiar with the various means of distribution for drugs and pharmaceuticals which may include, but are not limited to: unit-dose cart fill, automated drug dispensing cabinet, floor stock, and distribution from a satellite pharmacy
2. Describe the control mechanisms involved in the dispensing of CSA controlled substances in an acute care setting
3. Describe the controls required for extemporaneous unit-dose packaging
4. Identify the drug storage standards required by the Joint Commission on Accreditation for Healthcare Organizations (JCAHO), Title 22, and other state or federal regulations
5. Describe the mechanisms for drug therapy review at different junctures, including but not limited to patient drug profile review, medication reconciliation, patient transfer between levels of service, and post-operative review of drug regimen
6. Develop competency using aseptic technique when performing sterile compounding

STUDENT ACTIVITIES:

Under the supervision of a licensed pharmacist, the student pharmacist shall participate in the following activities:

1. Perform a unit-dose cart fill
2. Perform a load, unload, and refill for an automated dispensing cabinet
3. Deliver a CSA controlled substance or load a CSA controlled substance into an automated dispensing cabinet with all of the associated controls
4. Package a batch of unit dose packaging

5. Accompany a pharmacist or technician to assist in the performance of a drug storage area (nursing unit) inspection
6. Work with the pharmacy staff to process patient transfers between units, and learn what requirements exist for such transfers. Assist in the taking of a medication history.
7. Practice aseptic technique when performing sterile compounding
8. If available, assist in the filling of outpatient prescriptions and identify the importance, difficulties, and challenges of maintaining communications between the inpatient and outpatient pharmacy venues

PHRM 704 – APPE Community Pharmacy Practice I (IPPE). Prerequisites are completion of all required didactic coursework and IPPE Community Practice. Upon successful completion of this IPPE in community pharmacy, the student will be able to:

1. Process a prescription order
2. Retrieve and interpret patient specific data
3. Identify patient specific drug related problems
4. Assess and evaluate the financial impact of drug therapy
5. Demonstrate knowledge of pharmacy laws and regulations
6. Provide patient counseling and disease state education
7. Identify therapeutic outcomes including effects of drug therapy on quality of life
8. Conduct patient consultations
9. Provide drug information
10. Demonstrate professional attitude and conduct

STUDENT ACTIVITIES

Under the supervision of a licensed pharmacist, the student pharmacist shall participate in the following activities:

1. Process a prescription order
 - a. Receive and evaluate the original prescription or refill (written or telephone)
 - b. Review for accuracy, completeness, validity, and appropriateness
 - c. Differentiate between the prescription drop-off interview and the dispensing/exit consultation
 - d. Prepare prescription for dispensing
 - e. Evaluate and monitor prescription refills
 - f. Determine therapeutic indications
 - g. Help select correct medication and appropriate dosage forms
 - h. Discuss the appropriateness of dosage, frequency, and route of administration with patients and other health care providers
2. Retrieve and interpret patient specific data
 - a. Retrieve information from the computer and/or patient medical record
 - b. Construct and maintain accurate patient profiles
 - c. Interpret patient data in regard to specific disease states and patient complaints
3. Identify patient specific drug related problems
 - a. Identify drug related problems through performing drug utilization reviews (DUR) and drug regimen reviews (DRR), clinical assessment of a patient, reviewing the patient profile and through patient consultations
 - b. Utilize available technology and patient interviewing techniques to:
 - i. Identify drug-drug/drug-disease/drug-nutritional and drug-allergy interactions
 - ii. Identify appropriate drug therapy

- iii. Assess patient compliance
 - iv. Assess patient understanding of their disease states and current medications
- 4. Demonstrate knowledge of pharmacy laws and regulations
 - a. Utilize professional and ethical judgment in the interpretation of laws and regulations (e.g. HIPAA)
 - b. Assure the medication order conforms to state and federal regulations, including laws/policies regarding controlled substances and generic/therapeutic substitution
- 5. Assess and evaluate the financial impact of drug therapy
 - a. Evaluate drug therapy costs, including costs of drugs as well as monitoring costs
 - b. Evaluate financial consideration of alternative therapies
 - c. Describe the various means by which the pharmacy seeks reimbursement for its cognitive services. The student should discuss the impact of pharmaceutical care programs on the health of patients and how they impact the cost of care
- 6. Provide patient counseling and disease state education
 - a. Effectively conduct a patient interview
 - b. Review medication information with the patient to insure appropriate use and compliance of drug therapy
 - c. Utilize patient education materials to assist patients in understanding their roles in effective medication use
 - d. Counsel patients with respect to assessment of adverse effects of their medications and how to care for these effects
 - e. Counsel patients with respect to non-prescription medications
 - f. Counsel patients with respect to common community-related disease states
 - g. Counsel and train patients on the appropriate use of disease state monitoring tools (blood-pressure cuffs, blood glucose monitors, peak-flow monitors, etc.)
 - h. Document patient interventions and patient care appropriately
- 7. Identify therapeutic outcomes including effects of drug therapy on quality of life
 - a. Determine therapeutic endpoints utilizing patient specific monitoring parameters
 - b. Identify and recommend appropriate drug, dose, schedule, route, and duration of therapy to achieve desired outcomes
 - c. Determine impact of therapy on QOL
- 8. Conduct patient evaluations
 - a. Recognize the need for pharmacist interventions
 - b. Refer patients to appropriate medical personnel when necessary
- 9. Provide drug information
 - a. Effectively retrieve and evaluate medical information for patients and health care providers
 - b. Describe the pharmacist's role in providing health care information within the community
 - c. Demonstrate effective communication skills, written and verbal, to preceptors, patients, physicians, and other health professionals
 - d. Obtain necessary background information to accurately answer drug information questions
 - e. Effectively evaluate, interpret, and summarize pharmaceutical and medical literature
 - f. Identify and utilize, both efficiently and effectively, appropriate drug information sources
- 10. Demonstrate professional attitude and conduct
 - a. Exhibit neatness and professionalism in appearance and work

- b. Accept constructive criticism, demonstrate receptiveness to feedback
- c. Demonstrate dependability, punctuality, courteousness, and tactfulness when dealing with patients and members of the health care team
- d. Maintain professional and ethical standards- compliance with laws and regulations, good professional judgment, reliability, and credibility when dealing with colleagues, patients, and other health care professionals
- e. Display self-directed (independent) learning, conduct self-assessment, develop a personal learning plan, and pursue knowledge independently
- f. Demonstrate competency in organizing and planning, set meaningful and attainable goals and be consistently well prepared
- g. Maintain confidentiality
- h. Display a patient and empathetic attitude, including appropriate body language and a genuine interest in the well-being of the patient
- i. Respond to assignments in a timely manner
- j. Consistently punctual and ready for work upon arrival, with no unexcused absences

PHRM 705 - APPE Community Pharmacy Practice II. Prerequisites are completion of Community Practice I (PHRM 704). Upon successful completion of this Community Practice APPE, the students will be able to:

1. Describe the provision of patient care services in a community setting, with an understanding of how such services are created, developed and maintained
2. Provide pharmaceutical care to patients in community practice setting, including patient care services, medication and disease-state consultations, self-care recommendations and adherence assessment
3. Demonstrate proficiency of skills acquired from Community Practice 1 APPE
4. Describe management skills required to maintain a pharmacy department

STUDENT ACTIVITIES

Under the supervision of a licensed pharmacist, the student shall participate in the following activities:

1. Identify, create and/or participate in a community based patient-care service*- services will vary among sites, but may include activities such as:
 - Blood Pressure Clinic
 - Diabetes Care Clinic
 - HIV Care Clinic
 - Fertility Clinic
 - Oncology Services
 - MTM Services
 - Tobacco Cessation Clinic
 - "Brown Bag" Sessions
 - Immunization Clinics
2. Become proficient in monitoring devices needed to run patient care services (e.g. glucometer)
3. Develop, implement and/or participate in a marketing plan for patient care services provided
4. Conduct patient visits during clinic hours
5. Provide educational services to other healthcare providers
6. Process a prescription order
7. Identify patient specific drug related problems through the use of drug utilization reviews (DUR), drug regimen reviews (DRR), clinical assessments, patient consultations and available technology

8. Demonstrate knowledge of pharmacy laws, including interpretation and observance of laws and regulations
9. Assess and evaluate the financial impact of drug therapy
10. Describe the various means of reimbursement for cognitive services, including the impact of pharmaceutical care programs on patient health and cost of care
11. Provide patient counseling and disease state education
12. Document patient interventions and patient care appropriately
13. Identify therapeutic outcomes including effects of drug therapy on quality of life
14. Conduct patient evaluations with the ability to recognize need for pharmacist intervention and/or referral to appropriate medical personnel
15. Provide drug information using effective retrieval and evaluation of medical information
16. Demonstrate professional attitude and conduct
17. Demonstrate knowledge of management skills needed to maintain a pharmacy department
18. Utilize various methods of purchasing and demonstrate knowledge as to the advantages and disadvantages of each method
19. Utilize available technology used in pharmacy operations
20. Discuss the facilities return goods policies
21. Utilize interpersonal skills in working with health care providers and pharmacy staff
22. Determine methods to improve a pharmacy department operating statement
23. Maintain and control inventory
24. Learn corporate organizational goals and objectives
25. Learn the role and responsibilities of the Pharmacist in Charge (PIC), Pharmacy Manager, and District Manager
26. Learn how the company handles marketing and sales
27. Learn labor policies and staffing issues
28. Discuss recruitment policies and procedures
29. Participate in prescription quality assurance programs
30. Understand third party plans, reimbursement, and formulary criteria
31. When available, the student shall participate in professional development activities:
 - Health Fair or Senior Center activity
 - Professional meetings attendance (i.e., APhA, ACCP) for further professional development
 - Attend management meetings for the organization

PHRM 706 - APPE Ambulatory Care I. Ambulatory Practice I is the first part of an advanced level outpatient clinical practice involving direct patient care. Prerequisites are the satisfactory completion of all required didactic coursework. Ambulatory Practice I APPE includes primary care and/or anticoagulation. Students will collaborate with multidisciplinary practices to provide effective medication management for patients. Disease state management, rational drug therapy and patient outcomes monitoring will be emphasized. Upon completion of this APPE, the student will be able to:

1. Describe a clinical pharmacist's role in the ambulatory care setting
2. Obtain and document all medical records related to a patient's medications and history
3. Evaluate, develop and monitor the patient's drug therapy treatment plan employing approved protocols
4. Counsel and educate patients and health care providers in the appropriate use of medications

5. Describe methods to detect and report adverse drug reactions
6. Provide drug information to patients and providers

STUDENT ACTIVITIES:

Under the supervision of a licensed pharmacist, the student pharmacist shall participate in the following activities:

1. Retrieve, analyze, and evaluate laboratory test results for out-of-normal range findings, including but not limited to the following:
 - Serum creatinine and calculation of estimated creatinine clearance
 - Electrolyte levels pursuant to a chem. panel or metabolic panel
 - Free serum calcium and calculation of estimated total serum calcium
 - PT, PTT, and INR
 - CBC
 - Various serum levels of drugs and determination if dosing is adequate, and recommendations if inadequate
 - Bacterial culture and sensitivity
2. Ability to calculate total body surface area
3. Ability to calculate estimated creatinine clearance from serum creatinine and patient specific data
4. Ability to correlate changes in laboratory values to make recommended changes in drug therapy and dosing

PHRM 707 – APPE Ambulatory Care II. Ambulatory Care II is the second part of an advanced level outpatient clinical practice involving direct patient care. Prerequisites are the satisfactory completion of APPE Ambulatory Care I (PHRM 706). Students will collaborate with multidisciplinary practices to provide effective medication management for patients. Disease state management, rational drug therapy and patient outcomes monitoring are emphasized. Experience shall be focused on one of the following areas:

- | | |
|------------------------------------|-----------------------------------|
| • Adult Primary Care | • Oncology |
| • Asthma, Pediatric and Adult | • Psychiatry |
| • CHF/Lipid/Cholesterol Management | • Diabetes Education & Management |
| • HIV | • Pain Management/Hospice |

Upon successful completion of this APPE, the student will be able to:

1. Describe a clinical pharmacist’s role in this particular specialty setting and how the pharmacist’s function is integrated into the overall treatment plan
2. Obtain and document all medical records related to a patient’s medications and history
3. Evaluate, monitor, and either adjust, or make recommendations to adjust, the patient’s drug therapy treatment plan employing approved protocols under the guidance & supervision of the clinical pharmacist
4. Counsel and educate patients and health care providers in the appropriate use of medications
5. Describe methods to detect and report adverse drug reactions
6. Provide drug information to patients and providers

STUDENT ACTIVITIES

Please refer to the specific Ambulatory Care Elective Syllabus for information on student activities.



PHRM 708 - APPE Acute Care I. Acute Care I is an advanced level institutional practice in the acute care hospital environment. Prerequisites are the successful completion of Institutional Practice I (PHRM 703). The Acute Care I APPE shall include retrieval and analysis of clinical laboratory data as they relate to drug therapy, which may include, but is not limited to PT, PTT, INR, chem panel, metabolic panel, CBC, culture and sensitivity, serum creatinine, etc. This rotation shall also develop the student's skills in researching a drug entity, analyzing the available literature, making a formulary recommendation based on clinical and pharmacoeconomic data, and making a concise presentation to a group of professionals. Upon completion of this APPE, the student will be able to:

1. Be familiar with the mechanics of looking up laboratory test results
2. Demonstrate the ability to calculate creatinine clearance in a clinical setting
3. Demonstrate the ability to calculate total body surface area in a clinical setting
4. Demonstrate the ability to calculate adjusted total serum calcium
5. Determine whether electrolyte levels obtained pursuant to a metabolic panel (or equivalent) are within normal limits.
6. Distinguish the difference between PT, PTT, and INR, and when to use each
7. Evaluate a CBC panel and determine what adjustments might be required
8. Determine whether a given variety of medication blood levels are therapeutic, sub-therapeutic, or supra-therapeutic
9. Research a drug entity and make a recommendation for formulary inclusion based on literature search and a pharmacoeconomic analysis

STUDENT ACTIVITIES

Under the supervision of a licensed pharmacist, the student pharmacist shall participate in the following activities:

1. Retrieve, analyze, and evaluate laboratory test results for out-of-normal range findings, including but not limited to the following:
 - Serum creatinine and calculation of estimated creatinine clearance
 - Electrolyte levels pursuant to a chem panel or metabolic panel
 - Free serum calcium and calculation of estimated total serum calcium
 - PT, PTT, and INR
 - CBC
 - Various serum levels of drugs and determination if dosing is adequate, and recommendations if inadequate
 - Bacterial culture and sensitivity
2. Ability to calculate total body surface area
3. Research and present a concise (not more than 5 minutes) summary of the drug, its mechanisms, advantages and disadvantages, and recommendation for formulary inclusion to either the Pharmacy & Therapeutics Committee or the group of on-site pharmacists.

PHRM 709 - APPE Acute Care II. Acute Care II is an advanced level institutional practice in the acute care environment. Prerequisites are the successful completion of Acute Care I (PHRM 708). The Acute Care II APPE shall include retrieval and analysis of clinical laboratory data as they relate to drug therapy for the adjustment of drug therapies by protocol or via recommendation to the prescriber for adjustments in the drug regimen. This rotation shall also develop the student's skills in documenting as Adverse Drug Event (ADE), analysis of the factors surrounding the event,

and making a determination whether the event was preventable. Upon completion of this APPE, the student will be able to:

1. Use the results of laboratory tests to adjust or make recommendations to adjust medication therapy
2. Adjust the dosage of renally cleared medications to account for variations in renal function
3. Adjust selected medications dosages to fit closely “under the curve” in order to maximize the effectiveness of the drug while simultaneously minimizing the adverse effects of the medication therapy
4. Review a CBC before chemotherapy treatment and make recommendations to treat or to forego treatment on that particular appointment
5. Adjust electrolytes in a TPN or PPN pursuant to the results of a metabolic panel (or equivalent) to achieve normal electrolyte balance
6. Adjust or make recommendations for adjustments in anticoagulant therapy based on bleeding times
7. To adjust the dosage or make recommendations to adjust the dosage of specified medications to achieve optimum therapeutic outcomes
8. Analyze an adverse drug event, the factors contributing to the event, and to make a determination whether it was preventable, under the guidance and supervision of a clinical pharmacist

STUDENT ACTIVITIES

Under the supervision of a licensed pharmacist, the student pharmacist shall participate in the following activities:

1. Evaluate laboratory test results as identified above and either makes adjustments or recommendations for changes in the drug therapy based on those results under the guidance and supervision of a clinical pharmacist
2. Evaluate an adverse drug event, analyzing the factors contributing to the event, and making a determination whether the adverse drug event was preventable

Students therefore begin with introductory experiences in community pharmacy, institutional practice and ambulatory care in Year 3 and progress to more advanced experiences in the second half of Year 3 and Year 4. The Pharmacy Practice components of the curriculum during the second two years of the PharmD program are summarized here:

CURRICULUM COURSE NUMBERING: YEARS 3-4

YEAR 3

SPRING SEMESTER

PHRM 702A - Clinical Sciences 5 - 2-unit course

CORE/REQUIRED ADVANCED PHARMACY PRACTICE EXPERIENCES - 6-unit courses

PHRM 703 - Institutional Pharmacy Practice

PHRM 704 - Community Pharmacy Practice 1 (IPPE)

PHRM 705 - Community Pharmacy Practice 2

PHRM 706 - Ambulatory Care 1

PHRM 707 - Ambulatory Care 2

PHRM 708 - Acute Care 1

PHRM 709 - Acute Care 2

YEAR 4

FALL SEMESTER

PHRM 702B-Clinical Sciences 6 - 2-unit course

ELECTIVE ADVANCED PHARMACY PRACTICE EXPERIENCES - 6-unit courses

Acute Care: PHRM 801 - 819

PHRM 801 - Acute Care Elective: Internal Medicine

PHRM 802 - Acute Care Elective: Infectious Diseases

PHRM 803 - Acute Care Elective: Critical Care

PHRM 804 - Acute Care Elective: Pediatrics

PHRM 805 - Acute Care Elective: Advanced Pediatrics

PHRM 806 - Acute Care Elective: Surgery

PHRM 807 - Acute Care Elective: Geriatrics/Psychiatry

PHRM 808 - Acute Care Elective: Management

PHRM 809 - Acute Care Elective: Medication Safety

PHRM 810 - Acute Care Elective: Cardiology

Ambulatory Care Elective: PHRM 821 - 839

PHRM 821 - Ambulatory Care Elective: Adult Primary Care

PHRM 822 - Ambulatory Care Elective: Anticoagulation

PHRM 823 - Ambulatory Care Elective: CHF/Hospice

PHRM 824 - Ambulatory Care Elective: Cardiovascular (CV-PHASE)

PHRM 825 - Ambulatory Care Elective: HIV/AIDS

PHRM 826 - Ambulatory Care Elective: Oncology

Community Practice Elective: PHRM 841 - 859

PHRM 841 - Community Practice Elective: Compounding

PHRM 842 - Community Practice Elective: Veterinary Pharmacy

PHRM 843 - Community Practice Elective: HIV/AIDS Clinic

PHRM 844 - Community Practice Elective: Fertility Clinic

PHRM 845 - Community Practice Elective: Oncology Clinic

PHRM 846 - Community Practice Elective: Diabetes Care Clinic
PHRM 847 - Community Practice Elective: Transplant Clinic
PHRM 848 - Community Practice Elective: Durable Medical Equipment
PHRM 849 - Community Practice Elective: Management

Miscellaneous Setting: PHRM 860 - 899

PHRM 861 - Long Term Care
PHRM 862 - Home Infusion
PHRM 863 - Nuclear Pharmacy
PHRM 864 - Forensic Toxicology
PHRM 865 - Academia
PHRM 866 - Pharmaceutical Sciences Research
PHRM 867 - Managed Care
PHRM 868 - Supply Chain Management
PHRM 869 - Drug Information
PHRM 870 - Health System Administration
PHRM 871 - Professional Organizations
PHRM 872 - Central Fill/CPP Call Center
PHRM 873 - Pharmacoeconomics
PHRM 874 - Drug Use Management
PHRM 875 - Federal Agencies
PHRM 876 - Clinical Research/Quality Management
PHRM 877 - Information Technology

Many more elective Advanced Pharmacy Practice Experiences (APPEs) have been added and are available. Please contact Dr. Lucinda Chan, Director of the Experiential Office for further information regarding the full list of additional elective rotation opportunities.

AN EXAMPLE OF A P3 & P4 ROTATION SCHEDULE

A diagrammatic overview of the PharmD clinical program during the P3 and P4 years appears below. It shows an example of a schedule of the seven required off-site clinical rotations (in lavender) and the 4 clerkship electives (in yellow). Four 6-week rotation blocks are left open for use at the student's discretion. The P3 Callbacks are represented at the right (in blue).

| YEAR 3 | SCHEDULED ROTATIONS | CALLBACKS |
|---------------------------|-------------------------------------|-----------|
| Early Rotation 6 weeks | OPEN | |
| Rotation 1 6 weeks | COMMUNITY PRACTICE-I [PHRM 704] | |
| Rotation 2 6 weeks | INSTITUTIONAL PRACTICE-I [PHRM 703] | |
| Rotation 3 6 weeks | AMBULATORY CARE-I [PHRM 706] | |

| | | |
|-----------------------|----------------------------------|---------------------------------------|
| Rotation 4 6 weeks | OPEN | P3 SPRING CALLBACKS [PHRM 702A] |
| Rotation 5 6 weeks | ACUTE CARE-I [PHRM 708] | |
| Rotation 6 6 weeks | ACUTE CARE-II [PHRM 709] | |
| Rotation 7 6 weeks | COMMUNITY PRACTICE-II [PHRM 705] | |

| YEAR 4 | SCHEDULED ROTATIONS | CALLBACKS |
|------------------------|---|----------------------------------|
| Rotation 8 6 weeks | AMBULATORY CARE-II [PHRM 707] | P4 FALL CALLBACKS [PHRM 702B] |
| Rotation 9 6 weeks | OPEN | |
| Rotation 10 6 weeks | ELECTIVE: ACUTE CARE - INFECTIOUS DISEASE | |
| Rotation 11 6 weeks | ELECTIVE: AMBULATORY CARE - ONCOLOGY | |

| | |
|------------------------|----------------------------|
| Rotation 12 6 weeks | OPEN |
| Rotation 13 6 weeks | ELECTIVE: LONG TERM CARE |
| Rotation 14 6 weeks | ELECTIVE: DRUG INFORMATION |

OTHER COP PROGRAMS

PharmD-MPH Dual Degree Program

Touro students and faculty are involved in significant community outreach. Two factors have strengthened the outreach efforts of the TUC COP: the increasing amount of interprofessional activity and the Public Health program, which has provided expertise about how to go about community outreach. The dual degree PharmD / MPH program has been particularly effective in producing a cadre of students who think about providing clinical pharmacy services in the context of health policy, epidemiology, and health demographics. There are approximately 54 pharmacy students enrolled in Touro's PharmD / Masters in Public Health dual degree program. For more information, please go to http://cop.tu.edu/programs_degrees/mph-dualdegree.html.

Masters Program (MSMHS-COP Program)

The Masters of Science in Medical Health Sciences program with an emphasis in Pharmacy Sciences is a relatively new program being offered by the College of Pharmacy (MSMHS-COP). This ten month program was developed for students who want to learn how to conduct bench and outcomes research with a high degree of scholarship. Each student works on a project with an individual mentor. Graduates are given the opportunity to interview and enter the PharmD program, continuing research with their mentor, apply to other programs, or pursue a research career. For more information, including requirements, the admission procedure, the curriculum, course descriptions, and a faculty list, please go to http://cop.tu.edu/programs_degrees/msmhs-curriculum.html.

Pharmacy Postgraduate Program (Residencies)

The Touro University California College of Pharmacy supports seven Postgraduate Year 1 pharmacy residency programs, and three Postgraduate Year 2 specialty residency programs. The aim of all the programs is to train and prepare future pharmacist practitioners to be leaders in the profession and their field(s) of interest. All programs are situated at several major health care institutions in the Bay Area and San Diego.

The 10 residencies and areas of emphasis are:

- Alameda County Medical Center (PGY1)
- LifeLong Clinics (PGY1)
- East Bay Hospitals (PGY1)
- Clinic Ole (PGY1)
- Golden Gate Pharmacy (PGY1 Community Pharmacy Practice)
- San Francisco General Hospital and Trauma Center (PGY1)
- Sharp Rees-Stealy Healthcare (PGY2 Ambulatory Care, San Diego)
- Sharp HealthCare (PGY2 Continuum of Care, San Diego)
- St. Helena Hospital Center for Behavioral Health (PGY1/PGY2 Psychiatric Pharmacy)
- Washington Hospital (PGY1)

For more information, please go to http://cop.tu.edu/programs_degrees/residencies.html.

Pharmacy Postgraduate Program (Fellowships)

- Pharmacy Education Administration Fellowship
- Veterans Administration Pharmacoeconomics and Health Outcomes

For more information, please go to http://cop.tu.edu/programs_degrees/fellowships.html.

TOURO COLLEGE (TCNY) OFFICIALS

Alan Kadish, MD, President and CEO – Touro College and Touro University

Zvi Loewy, PhD, Interim Dean, College of Pharmacy, Touro College – New York

For a complete list, go to: <http://www.touro.edu>

TOURO UNIVERSITY CALIFORNIA (TUC) ADMINISTRATION

For contact information please go to <http://tu.edu> > Faculty & Staff

Shelley Berkley, JD, Senior Provost and CEO of TUC and TU-Nevada, Touro Western Division

Marilyn Hopkins, DNSc, PhD (Hon), Provost and COO of TUC

Michael Clearfield, DO, FACOI, Dean of the College of Osteopathic Medicine (COM)

Rae Matsumoto, PhD, Dean of the College of Pharmacy

Jim O'Connor, PhD, Dean of the College of Education and Health Sciences (CEHS)

Assefaw Tekeste Ghebrekidan, MD, Dr. PH, Director of the MPH Program

Ann Stoltz, Director of Nursing

Lisa Waits, PhD, Dean of Student Services

James Binkerd, DO, Associate Dean of Student Services

Jonalee Adriano, Director of Fiscal Affairs and Accounting

Jay Ritchie, Associate Vice President of Administration

Gregg Lund, DO, Senior Associate Dean, COM

Abraham Pera, DO, Senior Associate Dean of Primary Care, COM

Rabbi Elchonon Tenenbaum, Director of Campus Life, Campus Rabbi

Katherine Lowe, Director of Human Resources

Steven Davis, Director of Admissions

Harold Borrero, PhD, Registrar

Tena Casey, Bursar

James Sotiros, Associate Vice President for Institutional Advancement

Julia Welch, Director of Information Technology

Tamara Trujillo, Director of Library

Lynne Moseley, Director of Financial Aid

Glenn Davis, Curriculum Director, COM

William (Drew) Walther, PhD, Director of Counseling

Ed Stern, Learning Specialist, Academic Support

Irene Favreau, PhD, Director of Alumni Relations

COLLEGE OF PHARMACY PERSONNEL

Contact information for TUCOP Faculty & Staff, is available at <http://tu.edu> > Faculty & Staff

ADMINISTRATION AND STAFF

DEANS AND DIRECTORS

- **Rae Matsumoto, PhD**, Dean of the College of Pharmacy
- **Paul C. Goldsmith, PhD**, Associate Dean for Academic Affairs & Research
- **Debra Sasaki-Hill, PharmD**, Associate Dean for Clinical & Professional Affairs
- **Robert Ignoffo, PharmD, FASHP, FCSHP**, Assistant Dean for Pharmacy Student Affairs
- **Layla Yousify, PharmD**, Pharmacy Student Development Specialist
- **Lucinda Chan, PharmD**, Director of Experiential Education
- **Keith Yoshizuka, PharmD, JD, MBA**, Assistant Dean of Administration
- **David Evans, BSc Pharm, PhD**, Director, MSMHS-COP Program

PROFESSIONAL STAFF

- **Janice Cabahug**, Administrative Assistant for Experiential Education
- **Bridget Canfield**, Coordinator of Assessment Data
- **Anne Davis**, Administrative Coordinator
- **Alisa Danyeur**, Executive Assistant and Curriculum Support Manager
- **Richard Hornstein**, Curriculum Support Specialist
- **Nalleli Ramirez**, Administrative Assistant for Experiential Education

FACULTY

BIOLOGICAL & PHARMACEUTICAL SCIENCES - TRACK 1 AND TRACK 2

- **Michael Ellerby**, Chair and Professor of Pharmaceutical Sciences; PhD, University of California, Santa Cruz (1986); NSF Postdoctoral Fellow, University of California, Los Angeles, CA (1991); NIH Senior Postdoctoral Fellow, Sanford-Burnham Medical Research Institute, La Jolla, CA (1994).
- **Nathalie Bergeron**, Professor of Biological Sciences; RDt, PhD, University Laval, Quebec (1992); Postdoctoral Fellowship (Nutritional Biochemistry, Physiology), University of California, San Francisco (1996).
- **David Evans**, Professor of Biological Sciences; BSc Pharm Pharmacy, Manchester University, UK (1985); PhD, University of Manchester, UK (1991).
- **Paul C. Goldsmith**, Professor of Biological Sciences; PhD, S.U.N.Y. Upstate Medical Center (1973); Postdoctoral Fellow, University of California, San Francisco (1976).

- **Susan Heimer**, Assistant Professor in Biological Sciences; PhD in Biochemistry and Molecular Biology, University of Maryland, Baltimore, MD (2002).
- **Kevin B. Ita**, Associate Professor of Pharmaceutical Sciences; MSc (Pharmacy) Lviv Medical University, Ukraine (1986); PhD (Pharmaceutics), North-West University, Potchefstroom Campus, South Africa (2004).
- **Daniel Keppler**, Associate Professor of Biological Sciences; PhD, University Pierre & Marie Curie (Paris 6), Paris, France (1988); Postdoctoral Trainee, Institut Suisse de Recherche Expérimentale sur le Cancer (ISREC), Epalinges, Switzerland (1995).
- **Shengquan Liu**, Assistant Professor of Pharmaceutical Sciences; BS (Pharmacy), College of Pharmacy, Shenyang Pharmaceutical University, Shenyang, China (1980). MS (Medicinal Chemistry), College of Pharmacy, Shenyang Pharmaceutical University, Shenyang, China (1982); PhD, University of Louisiana, Monroe (1997); Postdoctoral Fellow, Oklahoma State University, Stillwater, OK (1999); Postdoctoral Fellow, The University of Texas, Austin, TX (2001).
- **Ingrid Lopes**, Associate Professor of Biological Sciences; DO (Doctor of Osteopathy), Des Moines University [formerly University of Osteopathic Medicine & Health Sciences], Des Moines, IA, (1992); Broadlawns Medical Center, The University of Iowa, Family Practice Program (1995); OM Board License, CA; DEA Certificate; American Board of Family Medicine (2003-2010); American Board of Holistic Medicine (2000).
- **Maggie Louie**, Associate Professor of Pharmaceutical Sciences; MS, Chemistry (Biochemistry) San Francisco State University (2000); PhD, Biochemistry and Molecular Biology, University of California, Davis (2004); Postdoctoral Fellow, University of California, Davis, CA (2005).
- **David Madden**, Assistant Professor of Pharmaceutical Sciences; PhD, Molecular and Cell Biology, University of California, Berkeley, CA (2003); Larry L. Hillblom Foundation Postdoctoral Fellow, Buck Institute for Age Research, Novato, CA (2009).
- **Gordon McCarter**, Associate Professor of Biological Sciences; PhD, University of California, Berkeley (1996); Postdoctoral Fellow, University of California, San Francisco (2000).
- **Alison McCormick**, Professor of Pharmaceutical Sciences; PhD, University of California, San Diego (1990); Jane Coffin Childs Postdoctoral Fellow, Stanford University School of Medicine, Palo Alto, CA (1993); Katherine McCormick Scholar, Stanford University School of Medicine, Palo Alto, CA (1994); Howard Hughes Fellow, Stanford University School of Medicine, Palo Alto, CA (1995).
- **Shona Mookerjee**, Assistant Professor of Pharmaceutical Sciences; MS, Biology, University of Rochester (2002); PhD, Biology, University of Rochester, Rochester, NY (2005); Research Scientist, University of Minnesota, Minneapolis, MN (2006); Postdoctoral Fellow, Buck Institute for Research on Aging, Novato, CA (2008).
- **Karl Meszaros**, Professor of Biological Sciences, MD, Semmelweis University, Budapest, Hungary (1971); PhD (Biology) Semmelweis University, (1978); Postdoctoral Fellow, University of Pennsylvania, Philadelphia, PA (1979).
- **Vanishree Rajagopalan**, Assistant Professor of Pharmaceutical Sciences; PhD, Molecular Pharmacology, T. J Long School of Pharmacy and Health Sciences, University of the Pacific, Stockton, CA (2004).

SOCIAL, BEHAVIORAL & ADMINISTRATIVE SCIENCES - TRACK 3

- **Keith Yoshizuka**, Chair and Assistant Professor of Social, Behavioral and Administrative Sciences; PharmD, University of the Pacific (1976); MBA, California State University, Sacramento (1981); JD, University of San Francisco (1985).
- **John Inciardi**, Adjunct Professor; PharmD, University of California, San Francisco, San Francisco, CA (1979); Doctor of Science (Clinical Epidemiology), Erasmus University, Netherlands (2001).
- **Katherine Knapp**, Professor of Social, Behavioral and Administrative Sciences; PhD, University of California, Davis (1974).
- **Debbie Lu**, Assistant Professor of Clinical Sciences; PharmD, University of Southern California, School of Pharmacy, Los Angeles, CA (2008); Master of Public Health, University of California, Berkeley, CA (2009), Pharmacy Practice Residency, Kaiser Permanente, Sacramento, CA (2010). RPh, CA.
- **Bijal Shah**, Associate Professor of Social, Behavioral & Administrative Sciences; BS Pharm, Bombay University, India (2000); PhD, University of New Mexico (2006).
- **Patricia Shane**, Associate Professor of Social, Behavioral & Administrative Sciences; Ph.D., University of California, Berkeley (1975).
- **Layla Yousify**, Assistant Professor of Social, Behavioral & Administrative Sciences; PharmD, Touro University California College of Pharmacy, Vallejo, California (2010).
- **Junhua Yu**, Assistant Professor of Social, Behavioral and Administrative Sciences; PhD Health Economics and M.S. in Applied Statistics (U of Alabama; M.S. in Applied & Resources Economics from East Carolina Univ.; and a B.S. in Land Use Planning from Huazhong Agricultural University in Wuhan, Hubei, China).

CLINICAL SCIENCES - PHARMACY PRACTICE - TRACK 4

- **Eric Ip**, Chair and Associate Professor of Clinical Sciences; PharmD, University of California, San Francisco (2006); PGY1 Pharmacy Practice Residency, Kaiser Permanente Santa Clara Medical Center, Santa Clara, CA (2007); Certified Strength and Conditioning Specialist-CSCS (2006); Board Certified Pharmacotherapy Specialist-BCPS (2007); Certified Diabetes Educator-CDE (2009); RPh, CA.
- **Hamed Ameli**, Instructor of Clinical Sciences; PharmD, Western University of Health Sciences College of Pharmacy, Pomona, CA (2011); RPh CA.
- **Linda Banares**, Assistant Professor of Clinical Sciences; PharmD, Oregon State University, College of Pharmacy, Portland, OR (2008); Pharmacy Practice Residency, Moses Cone Health Systems, Greensboro, NC (2009); Ambulatory Care Residency, Parkland Health and Hospital System, Dallas, TX (2010). RPh, CA, TX, OR.
- **Laura Baumgartner**, Assistant Professor of Clinical Sciences; PharmD, University of Minnesota College of Pharmacy, Minneapolis, MN (2012); RPh, CA, CO.

- **Monica Bidwal**, Assistant Professor of Clinical Sciences; PharmD, Touro University California College of Pharmacy, Vallejo, CA (2012); RPh, CA.
- **Chad Bradford**, Assistant Professor of Clinical Sciences; PharmD, Touro University California College of Pharmacy, Vallejo, CA (2012); RPh, CA.
- **William Dager**, Clinical Professor of Clinical Sciences, Touro University-California; Clinical Professor of Pharmacy, University of California, San Francisco; Clinical Professor of Medicine, UC Davis School of Medicine; PharmD, University of California, San Francisco (1985); Pharmacy Practice Residency at University of California, Davis Medical Center (1986); Nephrology Pharmaceutical Care Preceptorship, University of Pittsburgh School of Pharmacy (1995); Board Certified Pharmacotherapy Specialist-BCPS (2008); Added qualifications in Cardiology (2010); RPh, CA.
- **Monica Donnelley**, Assistant Professor of Clinical Sciences; PharmD, Touro University California College of Pharmacy, Vallejo, CA (2012); BCPS; RPh, CA.
- **Shadi Doroudgar**, Assistant Professor of Clinical Sciences, PharmD, University of Southern California College of Pharmacy (2011); RPh, CA.
- **Jeremiah DUBY**, Assistant Professor in Clinical Sciences; PharmD, Washington State University College of Pharmacy (2003); Pharmacy Practice Residency, University of Arizona (2004); Critical Care Specialty Residency, University of Arizona (2005); BCPS; RPh, AZ, WA, CA.
- **Mark Gloudeman**, Assistant Professor in Clinical Sciences; PharmD, Creighton University School of Pharmacy, Omaha, NE, (1988); Veterans Affairs Medical Center, Martinez, Hospital Pharmacy Residency (1989); RPh, CA.
- **Jerry Gonzales**, Assistant Professor of Clinical Sciences; PharmD, University of California, San Francisco (1980); M.S. in Health Care Management Program, California State University at Los Angeles, School of Business (1990); RPh, CA.
- **Robert Ignoffo**, Professor of Clinical Sciences; PharmD, University of California, San Francisco (1971); BCCP, Pharmacy Practice Residency at University of California, San Francisco (1972); FASHP; FCSHP; RPh, CA.
- **Tristan Lindfelt**, Assistant Professor of Clinical Sciences, PharmD, University of California, San Francisco (2007); BCPS; BCACP; RPh, CA.
- **Kajua Lor**, Assistant Professor of Clinical Sciences; PharmD, University of Wisconsin - Madison School of Pharmacy (2009); Ambulatory Care Residency, University of Minnesota, College of Pharmacy, St. Paul, MN (2010).
- **Victor Monrreal, Jr.**, Assistant Professor of Clinical Sciences, PharmD, Touro University California College of Pharmacy, Vallejo, CA (2010); RPh, CA.
- **Adrian Palisoc**, Assistant Professor of Clinical Sciences; PharmD, Touro University California College of Pharmacy, Vallejo, CA (2010); RPh, CA.
- **Paul J. Perry**, Professor of Clinical Sciences; BS Pharm, University of the Pacific, Stockton, CA (1969); MS Pharm, University of the Pacific, Stockton, CA (1971); PhD, University of the Pacific, Stockton (1973), BCPP, Psychiatric Pharmacy Practice; RPh, CA, IA, NV.
- **Debra Sasaki-Hill**, Assistant Professor of Clinical Sciences; PharmD, University of the Pacific (1976); RPh, CA

- **Robert Schoenhaus**, Associate Professor of Clinical Sciences; PharmD, University of California, San Francisco, School of Pharmacy (2003); Pharmacy Practice Residency, Kaiser Permanente, San Diego, CA (2004); Pharmacy Practice Specialty Residency in Pharmacoeconomics and Formulary Management, Veteran's Affairs Hospital, San Diego, CA (2005). RPh CA
- **Terrill Tang**, Assistant Professor of Clinical Sciences; MS Biomedical Engineering, University of California, Los Angeles (2003); PharmD, University of California, San Francisco (2007); PGY1 Pharmacy Practice Residency, University of California, San Francisco (2008); Board Certified Pharmacotherapy Specialist-BCPS (2008); RPh, CA.
- **Kelan Thomas**, Assistant Professor of Clinical Sciences, PharmD, University of California, San Francisco (2007); BCPS; BCACP; RPh, CA.
- **Kajua Lor**, Assistant Professor of Clinical Sciences, PharmD, University of Wisconsin Madison School of Pharmacy, Madison, WI (2009); RPh, CA

EXPERIENTIAL FACULTY - TRACK 5

- **Lucinda Chan**, Director and Assistant Professor of Clinical Sciences, BS Pharm, University of Arizona (1964); RPh, CA, AZ.
- **Larry Cacace** Assistant Professor of Clinical Sciences, PharmD, University of California, San Francisco (1968); RPh, CA, AZ.
- **Bridgette Lofholm**, Assistant Professor of Clinical Sciences, PharmD, University of the Pacific, Thomas J. Long School of Pharmacy and Health Sciences, Stockton, CA; (2010); RPh, CA.
- **Adrian Wong**, Assistant Professor of Clinical Sciences, BS Pharm, Idaho State University College of Pharmacy, Pocatello, ID (1975); RPh, CA.
- **Terri Wong**, Assistant Professor of Clinical Sciences; PharmD, Touro University California College of Pharmacy, Vallejo, CA (2012); Pharmacy Education Administration Fellow (2013); RPh, CA.

RESIDENTS (2014-2015)

- **Lena Yoo**, PGY1, San Francisco General Hospital and Trauma Center, PharmD, University of California, San Francisco; (2014).
- **Janet Kwon**, PGY1, LifeLong Medical Care, PharmD, Touro University California; (2014).
- **Maria Rivas**, PGY1, Clinic Ole, PharmD, University of California, San Francisco; (2014).
- **Sukhpal Cheema**, PGY1, Alameda County Medical Center, PharmD, Touro University California; (2014).
- **Afsheen Ahmad**, PGY1, Golden Gate Pharmacy, PharmD, Philadelphia College of Pharmacy; (2014)
- **Priscilla Van Dyke**, PGY1, Center for Behavioral Health, PharmD, University of California, San Francisco; (2014).
- **Maria Ko**, PGY1, NorthBay Hospital, PharmD, Touro University California; (2014).
- **Hedieh Assareh**, PGY1, Washington Hospital, PharmD, Touro University California; (2014).
- **John Kapisarov**, PGY1, Washington Hospital, PharmD, University of Colorado Denver Skaggs; (2014).
- **Nada Abou-Karam**, PGY2, Sharp HealthCare, PharmD, University of Minnesota; (2013); PGY1 Residency Training at United Hospital, Allina Health, St. Paul, MN.

- **Farzad Daneshvar**, PGY2, Sharp Rees-Stealy Medical Centers, PharmD, University of Michigan; (2013); PGY1 Residency Training at Henry Ford Hospital, Detroit, MI.

FELLOWS

- **Clipper Young**, PGY1-PGY2 Pharmacy Education and Administration Fellow, PharmD, Touro University of California College of Pharmacy, Vallejo, CA (2012);

