

**LIU Pharmacy**  
**2015-2016**  
**Professional Program and**  
**Graduate Bulletin**



Arnold & Marie Schwartz College of Pharmacy and Health Sciences

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# LIU Pharmacy

## 2015 - 2016 Professional Program & Graduate Bulletin

*75 DeKalb Avenue, Brooklyn, N.Y. 11201-5497*

*LIU Pharmacy General Information: 718-488-1234*

*[www.liu.edu/pharmacy](http://www.liu.edu/pharmacy)*

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Notice to Students: The information in this publication is accurate as of September 1, 2015. However, circumstances may require that a given course be withdrawn or alternate offerings be made. Therefore, LIU reserves the right to amend the courses described herein and cannot guarantee enrollment into any specific course section. All applicants are reminded that the University is subject to policies promulgated by its Board of Trustees, as well as New York State and federal regulation. The University therefore reserves the right to effect changes in the curriculum, administration, tuition and fees, academic schedule, program offerings and other phases of school activity, at any time, without prior notice.

The University assumes no liability for interruption of classes or other instructional activities due to fire, flood, strike, war or other force majeure. The University expects each student to be knowledgeable about the information presented in this bulletin and other official publications pertaining to his/her course of study and campus life. For additional information or specific degree requirements, prospective students should call the campus Admissions Office. Registered students should speak with their advisors.

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**LIU**

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**Accreditation and Program Registration**

Long Island University is accredited by the Middle States Commission on Higher Education, 3624 Market Street, Philadelphia, PA 19104; 267-284-5000; website: [www.msche.org](http://www.msche.org). The Middle States Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and by the Council for Higher Education Accreditation. The degree and certificate programs are approved and registered by the New York State Department of Education.

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## ABOUT LIU PHARMACY

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### Arnold & Marie Schwartz College of Pharmacy and Health Sciences

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#### Over 125 Years of Tradition

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LIU Pharmacy — (the Arnold & Marie Schwartz College of Pharmacy and Health Sciences), the oldest unit of Long Island University, was established in 1886 as the "Brooklyn College of Pharmacy" by the Kings County Pharmaceutical Society. Objectives of the society in creating the college included the following "...to improve the science and art of pharmacy by diffusing knowledge among the apothecaries and druggists, fostering pharmaceutical literature, developing talent for pharmaceutical pursuit and investigation, and stimulating discovery and invention in the several departments of the drug business."

In 1929, the Brooklyn College of Pharmacy affiliated with Long Island University, one of the largest independent universities in the United States. Located, since 1976, at the LIU Brooklyn campus, LIU Pharmacy attracts a diverse student population that strives to grow personally, intellectually and professionally in pharmacy and related fields.

The college serves as an urban leader in pharmacy education through its pursuit of excellence and innovation in teaching, scholarship and service. Forging alliances and partnerships with health-care providers and the pharmaceutical industry, the college has created a rich mosaic of programs that elevate student aspirations and are responsive to the health-care needs of society.

As an advocate for an expanded scope of pharmacy practice, the college creates new paradigms for collaborative practice models that will shape the future of the profession of pharmacy.

The college has completed more than 125 years of service to the state and the nation in the education of entry-level professional students and graduate students, many of whom have attained prominence in pharmacy and the other health professions.

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### Mission, Vision and Values

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#### Mission

The mission of LIU Pharmacy (the Arnold & Marie Schwartz College of Pharmacy and Health Sciences) is to provide Access and Excellence in private higher education to individuals from the culturally and socioeconomically diverse metropolitan New York region and beyond who seek to become pharmacists committed to the

advancement of the profession and to those persons who desire to become scientists devoted to research and innovation in the pharmaceutical and related sciences.

#### Vision

LIU Pharmacy strives to support the profession of pharmacy's vision for practice, research and education by providing an environment that:

- Prepares a continuing stream of new pharmacists well-prepared to deliver evidence-based medication therapy management and other pharmacy and health-related services as a part of interdisciplinary teams dedicated to patient-centered care and the general well-being of the public health
- Inculcates the commitment and collective participation of faculty, students and other stakeholders (such as alumni, members of the Council of Overseers, and university officers) toward fostering: innovation in practice; advancement of the basic, clinical and translational sciences; application of new educational strategies; and engagement of other health care professionals from across the disciplines
- Ensures, through the assessment and evaluation of desired outcomes and via continuous quality improvement measures, that student pharmacists are well equipped for evidence-based practice by acquiring a thorough didactic foundation in the biomedical, social/behavioral/administrative, pharmaceutical and clinical sciences as well as engaging in comprehensive experiences that foster the skills to apply the acquired knowledge to practice or enter PGY-1 residencies or fellowships following graduation
- Provides academic, professional, and co-curricular opportunities that aspire to transform our students into intellectually vigorous lifelong learners who are socially and professionally responsible global citizens
- Delivers graduate education programs that prepare individuals for teaching, research, and other careers in academia, the pharmaceutical industry and regulatory agencies
- Offers affordable, convenient and high-quality continuing professional education activities to maintain, advance and enhance the competencies and ongoing professional development of pharmacists and pharmacy technicians

#### Values

- LIU Pharmacy is committed to a culture that:
- Strives for quality and improvement in all facets of its mission and embraces assurance of the same by the encouragement of comprehensive assessment and evaluation
  - Celebrates the diversity of its students, faculty and other stakeholders in an environment that fosters their professionalism, collaboration, ethical behavior, leadership and scholarship by supporting and attending to their differing needs
  - Embraces demonstrated and innovative

teaching strategies that enhance learning, promote interprofessional collaboration, support the varied needs of students, and prepare learners for the continuum of lifelong education

- Supports the continuing professional development of pharmacists and pharmaceutical scientists through graduate programs, continuing professional education, faculty, staff and preceptor development, and other forms of postgraduate education and training
  - Encourages the involvement and innovation of stakeholders in maintaining and improving contemporary pharmacy practice and visioning for its future by engendering and enhancing professional skills through education, committing to the delivery of pharmacist-delivered patient-centered care and other services, and embracing the application of scientific advancements to practice)
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### Professional and Graduate

#### Degrees

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LIU Pharmacy offers the entry-level Doctor of Pharmacy (Pharm.D.) degree and the following graduate programs: Doctor of Philosophy in Pharmaceutics (Ph.D.), and the Master of Science degree in Pharmaceutics with specializations in Industrial Pharmacy and Cosmetic Science, Drug Regulatory Affairs, and Pharmacology/Toxicology.

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#### Membership

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LIU Pharmacy is an institutional member of the American Association of Colleges of Pharmacy ([www.aacp.org](http://www.aacp.org)), the national organization representing pharmacy education in the United States. The mission of the association is to both represent and be an advocate for all segments of the academic community in the profession of pharmacy.

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#### Accreditation

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LIU's Doctor of Pharmacy program is accredited by the Accreditation Council for Pharmacy Education, 135 South LaSalle Street, Suite 4100, Chicago, IL 60603-4810, 312/664-3575; FAX 312/664-4652; Website: [www.acpe-accredit.org](http://www.acpe-accredit.org).

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### LIU Pharmacy Publications

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In addition to LIU Brooklyn's and LIU's diversified publications, LIU Pharmacy offers:

The *Pharmakon*, or Senior Yearbook, a graduation memento published by the Senior Class;

The *Bulletin, for Professional and Graduate Pharmacy Programs*, listing admission

requirements, curricula, course descriptions and other information;

LIU Pharmacy also publishes a series of brochures on such matters as continuing education programs and lectures by visiting scientists.

## Pharmacy Student Organizations

Students of LIU Pharmacy have the opportunity to participate in a wide variety of pharmacy professional organizations. Several of these organizations have student chapters affiliated with LIU Pharmacy. Additionally, students may elect to participate in professional fraternal societies and/or social clubs and organizations. The LIU Brooklyn campus also offers over 50 clubs and organizations for students.

### Pharmacy Student Leadership Council

All full-time students in LIU Pharmacy professional program are represented by the Pharmacy Student Leadership Council. The Council consists of elected representatives from each class as well as all professional organizations and serves to promote the general welfare of the pharmacy student body. All full-time students are permitted to vote in the Pharmacy Student Leadership Council elections and are invited to participate in all activities sponsored by the Council.

### Professional Organizations with Local Chapters

#### *American Pharmacists Association-Academy of Student Pharmacists (APhA-ASP)*

The Academy of Student Pharmacists is the national professional society of pharmacy students in the United States and an official subdivision of the American Pharmacists Association (APhA). ASP membership is open to any student regularly enrolled in a pre-pharmacy or pharmacy program in an accredited school. ASP chapters provide many professional, educational and social activities for members ([www.aphanet.org](http://www.aphanet.org)) or ([www.pharmacist.com](http://www.pharmacist.com)).

#### *American Association of Pharmaceutical Sciences (AAPS)*

AAPS is the professional organization to which many of the college's graduate students in the M.S. and Ph.D. programs as well as pharmaceutical sciences faculty belong ([www.aaps.org](http://www.aaps.org)).

#### *American College of Clinical Pharmacy (ACCP)*

ACCP is a professional and scientific society that provides leadership, education, advocacy and resources to enable clinical pharmacists to achieve excellence in practice and research. ACCP's membership is composed of practitioners, scientists, educators, administrators, students, residents, fellows, and others committed to excellence in clinical pharmacy and patient pharmacotherapy. ACCP StuNet is a network that

provides student members access to leaders in clinical pharmacy, as well as a chance to explore leadership roles within ACCP ([www.accp.com/stunet](http://www.accp.com/stunet)).

#### *Academy of Managed Care Pharmacy (AMCP)*

AMCP is the national professional association of pharmacists who use the tools and techniques of managed care in the practice of pharmacy. Its goal is to provide the best available pharmaceutical care for patients and to empower its members to serve society by using sound medication management principles and strategies to improve health care for all and to help reduce health-care costs ([www.amcp.org](http://www.amcp.org)).

#### *American Society of Consultant Pharmacists (ASCP)*

ASCP is the national professional association representing pharmacists who provide medication distribution and consultant services to patients in long-term care facilities ([www.ascp.com](http://www.ascp.com)).

#### *American Society of Health-System Pharmacists-Student Society of Health-System Pharmacists (ASHP-SSHP)*

SSHP offers a broad array of services and products to health-system pharmacists, and serves as a national accrediting organization for pharmacy residency and technician training programs. Any student interested in institutional pharmacy practice should join; benefits include Student Line, a student newsletter, and special programs at ASHP national meetings ([www.ashp.org](http://www.ashp.org)).

#### *Indo-American Pharmacists Society (IAPS)*

IAPS was formed by pharmacy students of Indian origin to promote social and professional networking opportunities and is open to all pharmacy students ([www.iapsrx.org](http://www.iapsrx.org)).

#### *Industry Pharmacist Organization (IPhO)*

IPhO, formally the Pharmaceutical Industry Student Association (PISA) is a newly renamed student organization that is a chapter of a professional pharmacy organization dedicated exclusively to advancing the careers of industry-based pharmacists. IPhO was founded by industry pharmacists for industry pharmacists. Its mission is to give pharmacy students more information to better understand the career opportunities open to them in the pharmaceutical industry. The chapter invites industry professionals, many of whom are alumni, to talk about their career paths and how to be successful in their areas of practice. IPhO members also collect information on related internships as well as the skills, education and experience that will be helpful in starting a career in the pharmaceutical industry. In addition, members work together to explore the different areas of pharmacy within industry where pharmacy students and pharmacists have opportunities for work

(<http://www.industrypharmacist.org>).

#### *Jewish Pharmaceutical Society (JPS)*

JPS was an organization originally formed in the 1950s at the Brooklyn College of Pharmacy that has been recently revived by students interested in promoting the profession among Jewish pharmacy students. Their events and guest speakers focus their attention on the intersection of their faith and their profession.

#### *National Community Pharmacists Association (NCPA)*

NCPA was founded in 1898 as the National Association of Retail Druggists (NARD); it represents the pharmacist owners, managers and employees of nearly 25,000 independent community pharmacies across the United States. Independent pharmacists – more than 60,000 nationwide – dispense the majority of the nation's retail prescription drugs. The College of Pharmacy opened a student chapter in 2004. The student chapter offers students a wide array of opportunities to broaden and enrich their educational experience and gain valuable, real-world skills ([www.ncpanet.org](http://www.ncpanet.org)).

#### *New Jersey Pharmacists Association (NJPhA)*

NJPhA was founded in 1870 to represent pharmacists in the State of New Jersey who practice in all areas of pharmacy. The student chapter was formed to promote networking opportunities for students who plan to practice in New Jersey ([www.njpharmacist.org](http://www.njpharmacist.org)).

#### *Student National Pharmaceutical Association (SNPhA)*

SNPhA (the student group of the National Pharmaceutical Association) is an organization of pharmacy students whose purpose is to plan, organize and coordinate programs geared toward the improvement of health education and the social environment of minority communities (<http://nationalpharmaceuticalassociation.org>).

#### *Student Pharmacists Society of the State of New York (SPSSNY)*

SPSSNY is a student chapter of the state pharmacists' organization whose focus is to promote the profession through legislative initiatives, networking opportunities and continuing education programs. The focus of this chapter is to keep students informed and mobilized regarding pending legislation that will affect the practice of their profession in New York ([www.pssny.org](http://www.pssny.org)).

### Other Professional Health-related Organizations

#### *Initiation of Giving Internationally through Volunteer Experiences (iGIVE)*

iGIVE is a new organization formed by pharmacy students but open to all students of Long Island University. Their goal is to provide

opportunities for students interested in service abroad, particularly in underdeveloped countries, such as Sierra Leone, Haiti, Honduras and Costa Rica. Students may use the service experience abroad to fulfill requirements toward their Doctor of Pharmacy degree. The organization is dedicated to building sustainable projects in the communities they visit. The membership promotes education on campus of these health initiatives through Professional Development Programs, fundraising and other programs.

#### *Student for Growing Interest for Transplantation (S4GIFT)*

S4GIFT is a chapter of a national organization interested in educating and training health professional students regarding organ, tissue, and bone marrow donation and transplantation.

#### **Professional Fraternal Societies**

##### *Kappa Psi Pharmaceutical Fraternity (KY)—Zeta Nu Chapter*

*Kappa Psi*, while new to the campus, is the oldest national pharmaceutical fraternity. Through the objectives of developing industry and fostering fellowship, sobriety, and high ideals, KY strives to advance the profession of pharmacy and service the community. ([www.kappapsi.org](http://www.kappapsi.org)).

##### *Lambda Kappa Sigma (LKS)—Alpha Eta Chapter*

*Lambda Kappa Sigma* is the only international, professional fraternity for women enrolled in pharmacy. It seeks motivated female students to join its ranks, and encourages the development of its members both culturally and intellectually. LKS provides both professional and social functions throughout the academic year ([www.lks.org](http://www.lks.org)).

##### *Phi Delta Chi (PDC)—Beta Theta Chapter*

The objective of Phi Delta Chi is to advance the science of pharmacy and its allied interests and to foster and promote a fraternal spirit among its members. A lifelong experience, PDC promotes scholastic, professional, and social growth in its Brothers. They strive to provide quality services to patients, thereby advancing public health and strengthening themselves as health professionals ([www.phideltachi.org](http://www.phideltachi.org)).

#### **Honorary Societies**

##### *Rho Chi Society—Beta Theta Chapter*

*Rho Chi* is the national pharmacy honor society that stimulates and recognizes superior scholarly achievement in pharmacy. Entry-level students in the upper 20% of their class who have a cumulative index of 3.500 or better are eligible for membership during their fourth year. Graduate students are eligible for membership if they have completed at least 24 credits with a 3.500 GPA in addition to other requirements. Eligible students will be automatically nominated for Society membership. Members are available to tutor pharmacy students during posted hours at a

designated location throughout the academic year ([www.rhochi.org](http://www.rhochi.org)).

##### *Phi Lambda Sigma—Beta Kappa Chapter*

*Phi Lambda Sigma* is the national pharmacy leadership society that promotes the development of leadership qualities among pharmacy students. To be eligible for membership, the student must be of high moral and ethical character, must have completed 96 credits of scholastic work applicable for the pharmacy degree, and have a grade-point average of at least 2.500. Prospective members are nominated on the basis of their demonstration of dedication, service and leadership in the advancement of pharmacy. Members are selected by peer recognition ([www.philambdasigma.org](http://www.philambdasigma.org)).

#### **Student Publications**

##### *Pharmakon*

*Pharmakon* is the yearbook of LIU Pharmacy. It is developed annually by its graduating students. Since the earliest years after it was founded in 1886, the Brooklyn College of Pharmacy's graduating class published an annual yearbook originally called *The Crimson and Gold*. In 1924, it was renamed *Pharmakon*, an ambiguously interesting Greek word meaning that "which acts as both remedy and poison;" it also refers to the gift of writing.

##### *The Pharmacy Newsletter (TPN)*

TPN is a publication by students in the Doctor of Pharmacy program that aspires to promote communication among students, faculty, administrators and the wider campus of LIU Brooklyn. In addition to covering events, activities and interviews for and about the college, each issue has a particular focus within the profession and may include original research of a peer-review nature as well as articles on scientific subjects.



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## LIU PHARMACY FACILITIES

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### Computer Laboratory

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Orlando Ross, Coordinator  
718-246-6359

The LIU Pharmacy Computer Laboratory is located on the third floor of the pharmacy building. The lab may be reserved for classes, workshops and other academic matters, in addition to being available for use by individual students during unreserved times.

### LIU Pharmacy (Main Building)

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The three-story main building of LIU Pharmacy houses the offices of the deans and administrative staff. Adjacent to these offices is the dean's conference room. In addition, the first floor of the building houses the Office of Student and Professional Affairs and Office of Student and Professional Activities. Faculty office suites for the Divisions of Pharmaceutical Sciences and Pharmacy Practice are located in the basement of this building. The suites consists of offices for divisional faculty members and support staff as well as a conference room. The second floor of the building contains a student lounge, a faculty lounge, an office for student professional organizations, a lecture room, and the Office of Continuing Professional Education. The third floor of the main building houses additional faculty office suites for the Division of Pharmacy Practice, the Pharmacy Student Computer Laboratory, and a quiet study room for pharmacy students.

### Pharmacy Wet Lab Building

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The three-story Wet Lab Building contains a mix of faculty offices, research facilities and teaching laboratories. The first floor of the building houses a Physical Assessment Laboratory that utilizes computer technology and other equipment to provide students with "hands-on" training and practice in physical assessment. The second floor houses research laboratories for the Division of Pharmaceutical Sciences, the Pharmacy Dispensing Laboratory and the Duane Reade Integrated Pharmaceutical Care Laboratory. The third floor of the building houses three newly constructed state-of-the-art research facilities: the Natoli Institute for Industrial Pharmacy Research and Development; Joan and Samuel J. Williamson Institute for Pharmacometrics; and the Leon Lachman Institute for Pharmaceutical Analysis. The third floor also houses the college's Animal Care Facility.

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## William Zeckendorf Health Sciences Center

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This six-story facility houses offices, classrooms, laboratories and student study spaces for LIU Pharmacy as well as the Harriet Rothkopf Heilbrunn School of Nursing and School Health Professions. The Division of Pharmaceutical Sciences occupies the sixth floor of the building. In addition to division and faculty offices the sixth floor contains numerous research laboratories, a seminar room, a conference room and a study room for students.

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## LIU PHARMACY OFFICES AND SERVICES

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### Office of the Dean

Dr. John M. Pezzuto, Dean  
718-488-1004

### Office of the Associate Dean

Martin E. Brown, Associate Dean  
Aruna Kissoon, Director, Program Support Services  
718-488-1236

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## Alumni Association

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The Alumni Association of LIU Pharmacy is comprised of individuals who have been granted entry-level and/or graduate degrees from LIU Pharmacy or the former Brooklyn College of Pharmacy. The purpose of the Alumni Association is to foster meaningful social and professional relationships among all members of the college family, to further the profession of pharmacy and to develop and advance the interests of LIU Pharmacy.

Alumni Association benefits include the following:

- Assistance with job placement and career development through the Office of Career Services, including access to distance counseling, job listings, interview and résumé workshops, and networking programs.
- Membership at the Steinberg Wellness Center for a nominal fee
- Access to campus facilities, including the library and computer labs with alumni ID card
- Invitations to LIU Pharmacy special events
- Local and online discounts

The Alumni Association encourages all alumni of LIU Pharmacy to support the Annual Fund, which provides assistance to LIU students in need through vital financial aid programs.

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## Continuing Professional Education

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**Joseph J. Bova, Director**  
718-488-1065

LIU Pharmacy's Department of Continuing Professional Education serves pharmacists and pharmacy technicians in advancing their continuing professional development (CPD) by providing live and web-based continuing professional education (CPE) activities.

The department affirms the mission of LIU Pharmacy and articulates its own primary mission of providing sufficient, affordable, convenient and high-quality knowledge-based CPE activities to maintain, advance and enhance the competencies and ongoing professional development of pharmacists and pharmacy technicians.

An average of 20 continuing professional

education activities are provided each year. Target audiences vary by activity but in most cases activities are structured for pharmacists and/or pharmacy technicians practicing in community-, ambulatory- and/or institutional-based settings that deliver patient-centered care. Many of the activities focus on pharmacotherapy for various disease states and/or special populations such as geriatric or pediatric patients. These activities are designed to advance and enhance the evidence-based practice of participants. Also regularly offered are activities that focus on general practice areas such as pharmacy laws and regulations, patient education and communications, and practice management.

Since 2008, the department has trained over 2000 pharmacists and students to be certified immunizers and has recently added the APhA Medication Therapy Management (MTM) certificate program to its offerings.

The department strives to provide a minimum of 3 contact hours of activities on medication errors and patient safety each year for those pharmacists needing to satisfy New York State requirements for continuing professional education.

In-person live CPE activities are available at convenient locations in the New York City metropolitan area. Participation in these live offerings affords valuable networking occasions in addition to advancing CPD. On-demand web-based CPE activities are also available. Featuring a wide range of topics these activities are designed for completion at the learner's own convenience and pacing. Visit the Continuing Professional Education website at [www.liu.edu/pharmce](http://www.liu.edu/pharmce) or call 718-488-1065 for the latest information.

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## Division of Pharmaceutical Sciences

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**Dr. Rutesh Dave, Division Director**  
**Dr. David R. Taft, Ph.D. Program Director** (Pharmaceutics), **M.S. Program Director** (Industrial Pharmacy, Cosmetic Science)  
**Dr. Vikas Sehdev, M.S. Program Director** (Pharmacology and Toxicology)  
**Dr. Jun-Yen (Eric) Yeh, M.S. Program Director** (Drug Regulatory Affairs)  
**Dr. Kenneth R. Morris, Director of the Lachman Institute for Pharmaceutical Analysis**  
**Dr. Ming Yang, Manager, Lachman Institute for Pharmaceutical Analysis**  
**Allison Krech, Graduate Programs Coordinator**  
718-488-1101

The Division of Pharmaceutical Sciences provides students with requisite instruction and skill development in biological, chemical, physical, mathematical, administrative, social and behavioral sciences, as well as selected areas from the humanities such as law, ethics and communications, and the application of these areas

to both the pharmaceutical sciences and the practice of pharmacy. The knowledge imparted to the professional program student covers a broad range of topics such as biochemistry, physiology, pathophysiology, microbiology, immunology, pharmacology, toxicology, medicinal chemistry, pharmaceutics, pharmacokinetics, health delivery and finance, practice management, pharmacoeconomics, pharmacy law, patient behavior and professional communications. Additionally, the division is responsible for the delivery of the college's graduate programs.

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## Division of Pharmacy Practice

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**Dr. Anna Nogid, Division Director**  
**Dr. Jane Shtaynberg, Director of Experiential Education**  
**Fernando Gonzalez, Director of the Pharmaceutical Care Laboratory**  
**Josephine Salcedo, Coordinator of Experiential Education**  
**Ashley Yohn, Coordinator of Experiential Education**  
718-488-1270

The Division of Pharmacy Practice provides students with the requisite instruction and skill development for engaging in the profession of pharmacy in ways that optimize health outcomes from pharmaceutical and other related treatments and interventions, ensure the effective and safe use of pharmaceuticals and maximize the benefits to both patients and society at large from the use of medications. This is accomplished through both didactic course offerings in areas such as pharmacotherapeutics, physical assessment, drug information and literature evaluation, public health and medication safety, as well as introductory and advanced pharmacy practice experiences offered throughout the professional phase of the Doctor of Pharmacy program.

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## The International Drug Information Center

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**Dr. Joseph Nathan, Director**  
**Dr. Sara Grossman, Drug Information Specialist**  
718-488-1064  
[bklm-idic@liu.edu](mailto:bklm-idic@liu.edu)

The International Drug Information Center (IDIC) of LIU Pharmacy is well recognized for its long-standing history of providing evidence-based, up-to-date, accurate, and unbiased drug information. Since its inception in 1973, the IDIC has provided information about pharmaceuticals and dietary supplements to a varied client base including pharmacists, physicians, nurses, other healthcare professionals, pharmaceutical companies, attorneys, law enforcement agencies, pharmacy benefit managers, poison control centers, and other institutional and organizational clientele. The IDIC also serves as a resource for

the drug information needs of select consumer groups. The center is staffed by drug information specialists who are experienced in retrieving and evaluating medical and pharmacy literature and who hold faculty appointments at LIU Pharmacy.

The IDIC's comprehensive library of resources includes numerous medical and pharmacy journals, specialized texts, commercial electronic databases, and its own in-house database. These resources, coupled with the expertise and experience of the specialists, allow the center to fulfill varied requests for drug information. Comprehensive literature searches, medication therapy management (MTM), drug evaluations, and other related projects are available as a special service upon request and through consultation with the IDIC staff.

The IDIC serves as a training site for senior pharmacy students enrolled in advanced pharmacy practice experiences as part of LIU's Doctor of Pharmacy program. Under the supervision and guidance of the IDIC faculty and staff, students participate in researching and responding to questions received by the center. Verbal and/or written responses (including references, if appropriate) are supplied promptly. A quality assurance program is in place to ensure that answers to questions are of the highest quality.

Inquiries regarding subscriptions to the IDIC should be directed to the center. As a courtesy, the IDIC responds to drug information inquiries received from the LIU community, as well as LIU Pharmacy's affiliated practice sites.

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## Student and Professional Activities

**Patrick J. Campbell, Director**  
718-488-1241

The Office of Student and Professional Activities is responsible for coordinating the activities of pharmacy student organizations in association with the Office of the Assistant Dean for Academic and Student Affairs. The office arranges and coordinates informational activities for pharmacy students including Dean's Hours, alumni mentor days, pharmacy residency, fellowship and graduate programs showcases, résumé and interview workshops and career fairs as well as coordinating on-campus recruitment of pharmacy students with LIU Brooklyn's Office of Career Services. In addition, the office oversees the LIU Pharmacy Student Leadership Council and yearbook staffs.

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## Student and Professional Affairs

**Dr. Kenza Benzeroual, Assistant Dean for Academic and Student Affairs**  
**Rheba Jules, Director of Pharmacy Academic Services**  
**Daniel Potenzieri, Admissions Coordinator, Pharm.D. Program**

**Kelley Kritz, Academic Advisor**  
718-488-1234

The Office of Student and Professional Affairs serves as an advisement and resource center for students enrolled in the professional programs of LIU Pharmacy. The office provides students with academic and personal advisement, registration materials, information on scholastic standing, scholarship applications, applications for intern permits and board examinations, listings of intern positions and other employment opportunities, information on student activities and professional organizations and other services and information of interest to entry-level professional pharmacy students.

Academic and personal advisement is provided by a professional staff knowledgeable of the pharmacy curricula and empathetic to the needs and concerns of professional students. Additionally, the staff assists students with course selection and registration; coordinates open houses for prospective students; facilitates student workshops on study habits and time management; prepares scholarship letters; assists in the review of applicants and coordinates the interview schedule of applicants; and assists in matters of progression and scholastic review of students.

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## ABOUT LIU BROOKLYN

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### Mission Statement

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Expressed in its still-relevant motto *Urbi et Orbi*, the mission of LIU since 1926 has been to open the doors of the city and the world to men and women of all ethnic and socioeconomic backgrounds who wish to achieve the satisfaction of the educated life and to serve the public good. Its mission is to awaken, enlighten and expand the minds of its students.

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### Overview

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Located in the heart of Downtown Brooklyn's thriving Tech Triangle, LIU Brooklyn provides students with experiential learning opportunities reflecting the entrepreneurial urban community it serves. Distinctive programs encompass the arts and media, natural sciences, business, social policy, urban education, the health professions, pharmacy, and health sciences.

Founded in 1926, LIU Brooklyn is the original unit of Long Island University. Its beautifully landscaped, 11-acre campus is a self-contained urban oasis, steps away from world-class arts and entertainment venues like Brooklyn Academy of Music and the Barclays Center, as well as the hip restaurants and cafes of Fort Greene and the Fulton Mall shopping district. Just a 10- minute subway ride from the professional and cultural opportunities of Manhattan, the vibrant campus includes residence halls for more than 1,100 students.

LIU Brooklyn has a deeply rooted tradition of athletic excellence. The basketball teams of the 1930s captured two national championships, and the campus' success in sports has continued over the decades with numerous Northeast Conference championships. Over the last 10 years, the Blackbirds have won 34 NEC titles, including 12 in the last three seasons. The campus currently fields 18 NCAA Division I teams.

The \$45-million Steinberg Wellness Center, which features an NCAA regulation swimming pool, a 2,500-seat arena, state-of-the-art workout facilities and a rooftop track, serves the campus and the surrounding community, and the Kumble Theatre provides an entertainment venue for student and professional performances. The historic Paramount Theater, which is an integral part of the campus, is being restored to its original grandeur and will provide another dynamic performance space for the Brooklyn community.

Dining facilities and food service areas are available in several locations. Blackbird Café, located in Connolly Residence Hall, offers an all-you-care-to-eat dining menu, including cutting-edge American entrees, international specialties, vegetarian selections and much more. Luntey Commons, located in Metcalfe Hall, is a food

court, including Habanero Mexican Kitchen, the All Tossed Up salad bar, Grille Works, and the Express Station. The glass-enclosed Cyber Café is home to Hale and Hearty Soups, Red Mango, and Subway. Two student-run enterprises, Healthy Choices and the Brooklyn Treat Shoppe, are located on the third floor of the Library Learning Center, Peet's Coffee is located on the third floor of the Arnold and Marie Schwartz Hall of the Arts and Humanities, and the Smoothie Bar is located in the Steinberg Wellness Center.

Generation after generation, much like Brooklyn itself, the LIU Brooklyn student body has been made up of people from a wide variety of cultures and nationalities. Like their predecessors, many of today's students are new to America and/or the English language or are the first in their families to seek a university education. At LIU Brooklyn, all students find an academic community where cultural, ethnic, religious, racial, sexual, and individual differences are respected and where commonalities are affirmed. This diversity creates an open and welcoming environment on campus, even as the University maintains respect for intellectual, cultural, and academic traditions.

Nationally recruited, the faculty has a strong commitment to teaching, to personal advisement of students, to the fullest range of scholarship, and to faculty development and service.

LIU Brooklyn recognizes both the faculty's training and experience and the character of its diverse student body as two of its greatest strengths. No matter what their background, students come to LIU Brooklyn to build the educational and intellectual foundations for successful personal lives and careers. The campus faculty and administration believe that a liberal education, along with careful preparation for a fulfilling career, is the best way to achieve this end.

To carry out its mission, LIU Brooklyn offers comprehensive undergraduate curricula, supported by advanced courses for specialized knowledge and graduate programs in those areas in which it has developed strength or has a unique contribution to make. In addition, the campus has designed programs to permit students to acquire essential literacies, intellectual curiosity, analytic and reasoning skills, and effective communication skills. In this way, the campus serves as a conservator of knowledge, a source and promulgator of new knowledge, and a resource for the community it serves.

LIU Brooklyn offers nearly 160 associate, undergraduate, graduate, doctoral, and certificate programs, including Ph.D. programs in clinical psychology and pharmaceuticals, the D.P.T. in physical therapy, and the Pharm.D. in pharmacy. Serving a diverse student body, its academic units include the LIU Brooklyn Honors College, the Richard L. Conolly College of Liberal Arts and Sciences; the School of Business, Public Administration and Information Sciences; the

School of Education; the Harriet Rothkopf Heilbrunn School of Nursing; the School of Health Professions; LIU Global, LIU Pharmacy (the Arnold & Marie Schwartz College of Pharmacy and Health Sciences); and the School of Continuing Studies. The campus is known for its nationally recognized Honors College, which was the first of its kind in the country and emphasizes a holistic, liberal arts background.

LIU Brooklyn offers early action decisions for undergraduate students who apply by December 1 for the following fall semester. Additional information can be obtained by contacting the offices below:

#### LIU Brooklyn Admissions Office

1 University Plaza  
Brooklyn, NY 11201  
718-488-1011 [bkln-admissions@liu.edu](mailto:bkln-admissions@liu.edu)  
[www.liu.edu/Brooklyn/admissions](http://www.liu.edu/Brooklyn/admissions)

#### LIU Brooklyn Enrollment Services Office

718-488-3320  
[brooklyn-enrollmentservices@liu.edu](mailto:brooklyn-enrollmentservices@liu.edu)  
[www.liu.edu/Brooklyn/enrollment-services](http://www.liu.edu/Brooklyn/enrollment-services)

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## Undergraduate and Graduate Offerings

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**Richard L. Conolly College** offers liberal arts and sciences programs leading to the degrees of Associate in Arts, Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Science, Master of Arts, Master of Fine Arts, Master of Science, and Doctor of Philosophy (in Clinical Psychology). It also offers a B.S./M.S. in Communication Sciences and Disorders/ Speech-Language Pathology, and a United Nations Graduate Certificate Program.

The **School of Business, Public Administration and Information Sciences** offers the degrees of Associate in Applied Science in Business Administration; Bachelor of Science in Accounting, Computer Science, Entrepreneurship, Finance, Healthcare Management, Management (available with a concentration in Human Resource Management), Marketing, and Technology Management; Bachelor of Science/Master of Science in Accounting; Master of Business Administration (M.B.A.) in Accounting; Master of Business Administration (M.B.A.) with concentrations in Entrepreneurship, Finance, International Business, Human Resource Management, Management, Management Information Systems, and Marketing (the MBA is also available as an accelerated One-Year MBA for all concentrations); Master of Science in Accounting, Computer Science, Human Resource Management, and Taxation; Master of Public Administration (M.P.A.) with majors in Public Administration and Health Administration; Advanced Certificates in Gerontology, Human Resource Management and Non-profit

Management; and a collaborative program leading to the United Nations Advanced Certificate and Master of Public Administration.

The **School of Education** offers, on the undergraduate level, the Bachelor of Arts, the Bachelor of Science and the Bachelor of Fine Arts degrees in various disciplines in urban education. On the graduate level, the school offers the Master of Science in Education degree in the areas of Childhood Urban Education, Early Childhood Urban Education, Adolescence Urban Education, Teaching Urban Children with Disabilities, Teaching Urban Adolescents with Disabilities, Teaching English to Speakers of Other Languages (TESOL), School Counseling, Bilingual School Counseling and School Psychology; the Master of Science degree in Mental Health Counseling and Marriage and Family Therapy; and Advanced Certificates in Bilingual Education, Educational Leadership, Early Childhood Urban Education, School Counseling, Bilingual School Counseling, Mental Health Counseling, Marriage and Family Therapy and Applied Behavioral Analysis.

The **School of Health Professions** offers the Bachelor of Science degrees in Health Science, Diagnostic Medical Sonography, Respiratory Care and Sports Sciences, and the Bachelor of Arts degree in Social Work. It also offers combined B.S./M.S. degrees in Athletic Training and in Occupational Therapy and the B.S./M.P.H. in Health Science / Master of Public Health. It offers the M.S. degrees in Exercise Science, and in Physician Assistant Studies as well as the Master of Social Work and the Master of Public Health. The Division of Physical Therapy offers a Doctor of Physical Therapy (D.P.T.) program that is a three-year post-baccalaureate graduate degree. An accelerated 3+3 B.S./D.P.T. in Health Science / Doctor of Physical Therapy is also offered.

The **Harriet Rothkopf Heilbrunn School of Nursing** offers the Bachelor of Science with a major in Nursing for generic, R.N.-B.S. and 2nd degree students, the Master of Science in Adult Nurse Practitioner and Family Nurse Practitioner, and Nurse Educator. The following Advanced Certificates are offered: Adult Nurse Practitioner, Family Nurse Practitioner, and Education for Nurses. The School of Nursing offers an accelerated R.N.-B.S./M.S. Adult Nurse Practitioner dual degree program.

**LIU Pharmacy (The Arnold & Marie Schwartz College of Pharmacy and Health Sciences)** offers an entry-level, six-year Doctor of Pharmacy (Pharm.D.) degree and the Master of Science degree in Pharmaceutics (with concentrations in Industrial Pharmacy and Cosmetic Science), Drug Regulatory Affairs and Pharmacology/Toxicology. It also offers the Doctor of Philosophy in Pharmaceutics (Ph.D.) degree.

**LIU Global** is designed for students who desire a hands-on learning approach in a variety of international locations. The college offers a Bachelor of Arts in Global Studies.

**LIU Brooklyn Honors College** is open to undergraduate students in all majors who meet the Honors College admissions requirements. Courses offered satisfy the liberal arts and social sciences core curriculum for each major; nine credits of advanced Honors College electives (12 for transfer students) are required to complete the program. Students may design a contract major for majors not offered by the university. A 3.0 cumulative GPA is required to graduate with honors; students who present at the annual Honors Symposium earn distinction in honors.

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## University Policies

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Long Island University does not discriminate on the basis of race, color, national origin, sex, disability, or age in its programs. The following person has been designated to handle inquiries regarding the non-discrimination policies:

**Ronald Edwards**

Title IX Coordinator

Long Island University

700 Northern Boulevard

Brookville, New York 11548

Phone: (516) 299-4236

For further information on notice of non-discrimination, visit

<https://wdcrocolp01.ed.gov/CFAPPS/OCR/contactus.cfm> for the address and phone number of the office that serves your area, or call 1-800-421-3481.

**DIRECTORY**

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**LIU PHARMACY GENERAL INFORMATION:**

718-488-1234

**LIU PHARMACY ADMINISTRATION**

DEAN—

John M. Pezzuto, A.B., Ph.D.

Rm. L108; 718-488-1004

ASSOCIATE DEAN—

Martin E. Brown, B.S., M.S.

Rm. L130; 718-488-1236

ASSISTANT DEAN FOR ACADEMIC AND STUDENT AFFAIRS—

Kenza E. Benzeroual, B.S., M.S., M.S., Ph.D.

Rm. L130E; 718-488-1234

DIRECTOR, DIVISION OF PHARMACY PRACTICE—

Anna Nogid, B.S., Pharm.D.

Rm. LB04; 718-488-1270

DIRECTOR, DIVISION OF PHARMACEUTICAL SCIENCES—

Rutesh Dave, B.S., Ph.D.

Rm. HS603; 718-488-1101

DIRECTOR, CONTINUING PROFESSIONAL EDUCATION—

Joseph J. Bova, B.S., M.S.

Rm. L207; 718-488-1065

DIRECTOR OF PHARMACY ACADEMIC SERVICES—

Rheba Jules, B.A., M.S., M.S.

Rm. L130D; 718-488-3368

DIRECTOR, STUDENT AND PROFESSIONAL ACTIVITIES—

Patrick J. Campbell, B.A., M.A.

Rm. L123; 718-488-1241

DIRECTOR, PROGRAM SUPPORT SERVICES—

Aruna Kissoon, B.A., M.S.

Rm. L130A; 718-780-4560

ACADEMIC ADVISOR—

Kelly Kritz, B.S., M.S.Ed.

Rm. L130C; 718-488-1693

DIRECTOR, EXPERIENTIAL EDUCATION—

Jane Shtaynberg, Pharm.D.

Rm. 114E; 718-488-3469

ADMISSIONS COORDINATOR,

DOCTOR OF PHARMACY PROGRAM—

Daniel Potenzieri, B.A.

Rm. L124; 718-488-1238

GRADUATE PROGRAMS COORDINATOR—

Allison Krech, B.A.

Rm. HS605; 718-488-1062

COORDINATORS OF EXPERIENTIAL EDUCATION—

Josephine Salcedo, B.A., M.B.A.

Rm. HS114A; 718-488-3455

Ashley Yohn, B.S.

Rm. HS114C; 718-488-1232

COORDINATOR, STUDENT COMPUTER LAB—

Orlando Ross

Rm. L303; 718-246-6359

DIRECTOR OF THE PHARMACEUTICAL CARE LABORATORY—

Fernando Gonzalez, B.S., M.S.

Rm. WL213; 718-488-1636

MANAGER, LACHMAN INSTITUTE FOR

PHARMACEUTICAL ANALYSIS—

Ming Yang, B.Sc., M.Sc., M.Sc., Ph.D.

Wet Lab 3rd Floor; 718-488-6056

**LIU BROOKLYN GENERAL INFORMATION:**

718-488-1000

**ADMISSIONS**

Sloan 101; 718-488-1011

**CAMPUS LIFE & CAREER SERVICES**

Pratt, 1st Floor; 718-488-1042

**LIBRARY**

718-488-1680

**PUBLIC SAFETY**

Rear, Metcalfe Building; 718-488-1078

**DEVELOPMENT AND ALUMNI RELATIONS**

Rm. M101; 718-488-1016

**ENROLLMENT SERVICES** (Bursar, Financial Aid, Registrar)

Sloan 3rd Floor; 718-488-3320

**LIU PROMISE**

Sloan 102; 718-488-1039

**INFORMATION TECHNOLOGY**

Rm. LLC227; 718-488-3300

**INTERNATIONAL STUDENT SERVICES**

Rm. M311; 718-488-1389

**STUDENT SUPPORT SERVICES**

Rm. P410; 718-488-1044

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**ACADEMIC CALENDAR 2015-2016**


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**Fall 2015**


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September 7	Labor Day-holiday
September 8	Weekday classes begin
September 8-21	Registration and program changes
September 12-13	Semester classes meeting Saturday-Sunday begin
September 12-13	First weekend session classes begin
September 18	Awarding of September degrees
September 21	Registration and program changes end
October 2	Last day to apply for comprehensive examination
October 16	Last day to apply for January degree
October 12-23	Midterm examinations-classes in session
October 24-25	First weekend session final examinations
Oct 31/Nov 1	Second weekend session classes begin
November 2	Last day for Partial Withdrawal
November 3	Election Day-classes in session
November 25	Wednesday follows a Friday schedule
November 26-27	Thanksgiving recess
November 28	Classes resume
December 2	Last day to submit thesis and complete degree requirements
December 12-13	Second weekend session final examinations
December 12-13	Semester classes meeting Saturday-Sunday end
December 15	Tuesday follows a Thursday schedule
December 16	Semester classes meeting Monday through Friday end
December 16	Last day for a full semester withdrawal
December 16	Last day to complete withdrawal appeal process
December 17-23	Final examinations-undergraduate and graduate
December 24	Winter recess begins

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**Spring 2016**


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January 18	Martin Luther King, Jr. Day.
January 19	Weekday classes begin
January 15	Awarding of January degrees
January 19-February 1	Registration and program changes
January 23-24	Semester classes meeting Saturday-Sunday begin
January 23-24	First weekend session classes begin
February 1	Registration and program changes end
January 29	Last day to apply for comprehensive examination
February 5	Last day to apply for May degree
February 15	President's Day-no classes
February 16	Tuesday follows a Monday Schedule
February 22-March 4	Midterm examinations-classes in session
March 5-6	Final Weekend I classes/Final Exams
March 7	Spring recess begins
March 14	Classes resume
March 16	Last day for partial withdrawal
March 19-20	Second weekend session classes begin
April 1	Last day to submit thesis and complete degree requirements
April 30/May 1	Second weekend session final examinations
May 3	Semester classes meeting Monday through Friday end
May 3	Last day for full semester withdrawal
May 4	Last day to complete withdrawal appeal process
May 4-10	Final examinations-undergraduate and graduate
May 12	Commencement Ceremony
May 13	Conferral of May degrees

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**Summer I 2016**

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May 14-15	Weekend session classes begin
May 16	Weekday classes begin
May 17	Registration and program changes end
May 28-30	Memorial Day-holiday
May 30	Last day to withdraw from undergraduate courses
June 1	Last day to apply for comprehensive examination
June 27	Last day of class/Final Exams
June 27	Last day to withdraw from graduate courses
June 27	Last day to complete withdrawal appeal process
July 2-3	Weekend session final examinations

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**Summer II 2016**

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July 4	Independence Day - holiday
July 5	Weekday classes begin
July 6	Registration and program changes end
July 8	Last day to apply for September degree
July 9-10	Weekend session classes begin
July 13	Last day to withdraw from undergraduate courses
August 15	Last weekday class
August 15	Last day to submit thesis and complete degree requirements
August 15	Last day to withdraw from graduate courses
Last Class Meeting	Final examinations
August 20-21	Weekend session final examinations



## LIU BROOKLYN HONORS COLLEGE

**James P. Clarke, Ph.D., Director;**  
**Melissa Antinori, Associate Director**  
**718-780-4023; Fax: 718-780-4061**  
**Email: bkln-honors-staff@liu.edu**

The LIU Brooklyn Honors College is a nationally recognized liberal arts program for undergraduate students in all disciplines at LIU Brooklyn. It is designed to assist students to become critical and independent thinkers. That goal is accomplished through an enriched core curriculum in small, seminar-style liberal arts classes that stress student participation and independent learning. The Honors College also gives students freedom to design their own majors (see contract major below). Within the university, the Honors College mission is to develop an active community of learners, providing opportunities for intellectual support, social interaction, and leadership development.

The Honors College is active in national organizations representing honors students and undergraduate research. Honors College students are encouraged to shape their own education in a variety of ways. They may do so by taking a broad range of courses outside their areas of concentration, by attending national and regional conferences involving undergraduate research, and by participating in national and international honors semesters sponsored by the National Collegiate Honors Council (NCHC).

Admission to the Honors College requires an additional application process. Once admitted to LIU Brooklyn, students should apply directly to the Honors College.

### Honors College Requirements

First-year students typically take a sequence of literature, history, and philosophy courses organized around a central theme. Completion of this sequence satisfies all WAC requirements outside the major. The Honors College also offers courses that enable students to complete their social science, fine arts, speech and foreign language requirements in an honors environment. At the upper-level, the Honors College offers advanced liberal arts electives representing a range of themes taught by faculty from all departments at the university, including the sciences, humanities, the arts, journalism, and the social sciences. The advanced electives utilize field experience, independent research, and the extraordinary resources of New York City to provide students with a unique learning experience. Topics vary each semester— current and recent offerings can be viewed on the Honors College website.

In order to graduate with honors, students must be in good standing with the program and must complete the Honors College freshman sequence, other honors equivalents for core courses, and at least three Honors College advanced electives. Transfer students who have already satisfied their

core liberal arts requirements may graduate with honors by completing four Honors College advanced electives. Students must also achieve a cumulative GPA of 3.0 or higher by the time of graduation.

### Program Model

Honors requires students to take the humanities and social science core courses in their major for which there is an Honors College equivalent offered by the college. Beyond the core requirements, Honors College students must take three Honors College advanced electives (9 credits) or, for students transferring into Honors College who have already completed the non-honors core, four Honors College advanced electives (12 credits). All Honors College requirements are built into the requirements of any given major; the Honors College does not require that students take additional credits to graduate.

### Contract Major

If a major is not offered by the university, an Honors College student may design his/her own major in consultation with an Honors College advisor and the appropriate faculty. Students interested in a contract major must be in good standing with the Honors College and will need the permission of the Honors College director and the approval of the appropriate faculty and the relevant dean. Applications will not be accepted until students have completed at least 32 credits. Interested students should contact their Honors College advisor immediately. Contract majors in the past have included degrees in bio-psychology, international relations, and public relations.

### Honors Independent Study

Honors College students in good standing may register for independent study. Prior agreement from a faculty mentor and approval of the Honors College director and the dean of Richard L. Conolly College are required. Independent study may satisfy up to six credits of Honors College advanced elective requirements.

### Distinction in Honors

Any final project for an Honors College advanced elective may be expanded, under the guidance of a faculty mentor, into a substantial paper. Review of the paper by the faculty mentor, approval by an Honors College director, and presentation at a year-end Honors College symposium are required to achieve Distinction in Honors at graduation. Interested students should contact their Honors College advisor.

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## CAMPUS LIFE AT LIU BROOKLYN

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### Athletics

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LIU Brooklyn Athletics is a member of the Northeast Conference in NCAA Division I, and currently supports 18 varsity sport programs that compete at the highest collegiate level in the country. The Blackbirds have won 14 league championships over the last four seasons, the most over any four-year stretch in school history, including three straight NEC titles in men's basketball from 2010-13 and nine NEC titles in women's volleyball in the last 11 years.

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### Campus Ministry

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**Rev. Charles P. Keeney**  
**718-488-3359**

Campus Ministry at LIU Brooklyn dares to foster a community that takes its faith traditions very seriously. We challenge our members to be credible witnesses of their traditions of faith and to employ the best elements of the same in the services of our community.

As a diversified, multi-religious and ethnic community par excellence, we seek to enrich one another and our community with the values of our different traditions, and to collaborate ecumenically as advocates for justice, peace and reverence for life.

The sacred writings of the different religions serve as our guide for action. And our mode of operation is from campus to social outreach, from place of theory to place of reality, from feelings of concern to actions against poverty, hunger, disease and social injustice.

Our goal is to help our community develop the full potentials of their humanity, become better citizens and responsible inhabitants of our planet, and to die with a better hope.

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### Cultural Programs and Exhibitions

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With three galleries, LIU Brooklyn presents monthly exhibitions of paintings, sculpture, photographs, prints, and other art forms by emerging and established artists. This thriving and diverse exhibition program, sponsored by the Department of Visual Arts, reflects LIU Brooklyn's strong commitment to making an array of visual art accessible to both students and the community. Gallery spaces include the Salena Gallery, the Nathan Resnick Showcase Gallery and the Humanities Building Gallery. Located in the lobby of the Kumble Theater, the glass-enclosed, elliptically shaped Humanities Building Gallery showcases unique presentations of projects and installations, many of which could not be

displayed anywhere else.

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### Living on Campus

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**Manisha Ford-Thomas, Director**  
**718-488-1046**

**email: [bkln-residencelife@liu.edu](mailto:bkln-residencelife@liu.edu)**

**website: [www.liu.edu/brooklyn/campus-life](http://www.liu.edu/brooklyn/campus-life)**

Residence Life and Housing provides a safe, caring and respectful community where experiential interactions inspire learning, citizenship, leadership and holistic reflection aligned with the Long Island University mission.

Residents reside in one of three residential halls. Richard L. Conolly Hall is a 16-story building of standard, suite, and apartment spaces for freshmen, sophomore, and junior class residents. Seniors live in the 1 Hoyt Street that is comprised of suites and apartment spaces. Graduate students reside in 490 Fulton a three-floor all-apartment residence.

All residential students are required to participate in one of the University Meal Plan options. All residences offer free wireless internet, cable, study lounges, recreation rooms, TV lounges, laundry rooms, 24 hours/day security officers, and dedicated professional and paraprofessional staff. Typical residential spaces include an extra-long twin sized bed, desk, desk chair, dresser, MicroFridge, wardrobe unit/closet, AC, and personal digital safe.

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### Public Safety

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**Emergencies: 718-488-1078**

**Non-Emergencies: 718-488-1078**

The Department of Public Safety at LIU Brooklyn is located in the rear of Metcalfe building, opposite the Pharmacy building. The department has a full-time staff that consists of a director, three tour commanders, three lieutenants, three desk sergeants, 45 public safety officers, and an administrative assistant. Public safety officers are licensed by the State of New York and are trained, certified and registered pursuant to the New York State Security Guard Act of 1992. The department serves the campus 24 hours a day, 7 days a week year-round and may be reached by dialing 1078 on campus telephones (add prefix 488 when using outside lines).

The Department of Public Safety is concerned with the welfare and safety of all members of the campus community and their guests. The activities of the Department of Public Safety are enhanced by its close relationship with the 84th and 88th Precinct, who shares the responsibility of maintaining law and order on the campus. This agency often notifies the department of any off-campus arrest involving members of our campus community if there is a perceived threat to the welfare of the other members.

Public safety officers are not peace officers, but they do handle criminal acts and crime scenes until the police department arrives. Suspects are

identified and detained for action by the arriving police personnel.

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### Annual Campus Security Report

In accordance with the provisions of the Jeanne Cleary Act, LIU Brooklyn's annual security report includes statistics for their previous three calendar years concerning reported crimes that occurred on campus; in certain off-campus buildings or property owned or controlled by LIU Brooklyn; and on public property within, or immediately adjacent to and accessible from, the campus. The report also includes institutional policies concerning campus security issues, such as those concerning alcohol and drug use, crime prevention, the reporting of crimes, sexual assaults, hate crimes, and other relevant matter.

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### Emergency Management

LIU Brooklyn's Department of Public Safety offers comprehensive services in emergency response and management to ensure the safety of our students, faculty and staff. Through several initiatives, the campus is prepared for a wide array of emergency situations, ensuring prompt notification and protection of the campus community whether the event is commonplace or extraordinary. In the event of emergency, LIU Brooklyn's Emergency Notification System is enabled to instantly and simultaneously contact LIU Brooklyn students, faculty and staff via Long Island University email, Web site notifications and text messaging to those who register their cell phones with the university. Emergency Building Managers assist Public Safety in disseminating information in their designated building and have been trained in "Evacuation" and "Shelter-in-Place" procedures. LIU Brooklyn employs the use of an outdoor siren warning system.

An efficient snow and emergency school closings system is in place to ensure our students are informed of closings immediately via the LIU Brooklyn homepage, our emergency closings hotline (718-488-1000 or 718-488-1078), as well as local radio and television stations.

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### Student Life

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**Division of Campus Life**  
**Pratt 122, 718-780-6545**

LIU Brooklyn's Office of Student Life facilitates the development of students, and hones their personal and organizational leadership skills by providing opportunities for participation in co-curricular, cultural, social, civic, community and wellness programs. The core values of student life are leadership, integrity, service, community, diversity, learning, and school spirit, and we carry out our mission primarily through our oversight of clubs and organizations, leadership training programs, evening programs, civic and community programs.

All students in good standing are encouraged to take part in extra-curricular activities. Activities as well as academics combine to develop and hone

skills that are beneficial in the workplace, and that provides the springboard for leadership opportunities in the world beyond LIU. Programs offered through the Office of Student Life are funded by the proceeds of the student activity fee. The distribution of the student activity fee promotes a progressive and student-centered program.

### **Student Organizations**

We guide and assist 30 academic student organizations, 22 social organizations 19 cultural organizations, 6 religious organizations, 11 honor societies, and 11 Greek organizations with the planning, organizing and implementing of each group's goals and events. In addition, we oversee the student media coalition which is comprised of: WLIU Radio, a state-of-the-art radio station, WLIU DJ Mobile Unit, Seawanhaka Newspaper, Sound Yearbook, and LIU Television.

### **Leadership Training**

Student life provides yearly leadership training for all students involved in student organizations at our summer leadership retreat as well as workshops for secretaries and treasurers. In addition, we have a student leadership academy which is primarily designed to train students to be leaders on campus. Both trainings are augmented by other stand alone trainings, workshops or webinars on specific issues like goal-setting, time management, diversity, friendship and self-esteem, and alcohol awareness.

### **Avena Lounge**

The Avena Lounge is a student area complete with opportunities for building business management and event planning skills. The lounge has a game room, kitchen for special events, and a snack bar which operates in the evenings from Mondays through Thursdays. Employment opportunities in the lounge also affords students the ability to hone their leadership skills while receiving payment.

### **Evening Recreation Program**

Our dynamic evening recreation program is multi-faceted ranging from basketball, tennis and African/Caribbean Dance to board games, table tennis and X-Box game tournaments. Students in the program compete in national and local tournaments. The program also sponsors trips to The New York Rangers and New Jersey Devils hockey, New York Knicks and Brooklyn Nets basketball, New York Mets and Yankees baseball, and New York Jets and Giants football.

### **Civic and Community Program**

Student Life co-hosts at least two workshops per year on the American electoral process and the importance of being registered to vote and being informed about political issues in general. The office registers approximately 400 students per year in our various voter registration drives. In addition, we accommodate students who go to Albany to lobby for student financial aid and other issues pertinent to them.

Additionally, the office sponsors a One Good

Deed program which involves a myriad of community service projects that include fundraising for various benefits such as Haitian earthquake and Hurricane Sandy relief, Breast Cancer research etc., an alternative spring break trip, several blood drives throughout the year, clothing and book drives, holiday celebrations for children in the community and several others. All students and members of student organization in particular are encouraged to complete at least 100 hours of community service per year.

Applications for the Student Leadership Academy, and the Community Service Involvement Forms are available in our office, Pratt 122.

### **Student Government Association**

All enrolled students are members of the Student Government Association (SGA). The executive officers of the SGA, along with the elected representatives from each class, constitute the Student Council. Some of the Student Council's many duties include allocating of funds to all campus clubs; approving the formation of new organizations; and sponsoring extracurricular programs of intellectual, cultural and social appeal for the student body. In addition to its administrative functions, the Student Council acts as a liaison between the student body and the faculty and administration. All students, including entering freshmen, in good academic standing are eligible to take part in the extracurricular activities program.

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## FACILITIES AT LIU BROOKLYN

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### After School Program - FUN (Family UNiversity)

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**Guin Ellsworth, FUN After School  
Director 718-246-6488**

**Charlotte Marchant, School of Education 718-  
246-6496**

The FUN (Family UNiversity) Program has been designed to serve financially eligible LIU Brooklyn students and their children. The FUN Program is located within the Learning Center for Educators & Families (LCEF), a vital site for inquiry and learning and part of LIU's School of Education at 9 Hanover Place. With support from LIU Brooklyn and the School of Education, we are able to provide a safe space for children to engage in community-building, explore their creativity through arts and literacy based activities, receive help with their schoolwork and eat a healthy dinner - leaving parents free to pursue their education. Beginning Fall 2015, in addition to the school-age (grades 1-7) program, FUN will offer an afternoon and evening early childhood (ages 2.5-5) program.

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### Arnold & Marie Schwartz Gym

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The Brooklyn Paramount Theater opened on November 23, 1928. At the time of its opening it was the second largest theater in New York with 4,500 seats. Once considered the most beautiful motion picture theater in the world, it was the first designed theater for movies with sound. Doubling as a concert hall, many famous musicians such as Ella Fitzgerald, Miles Davis, Duke Ellington, Chuck Berry and Buddy Holly all graced the theater with their musical presence.

In 1962, a transformation began to turn the historic Paramount Theater into the Arnold and Marie Schwartz Athletic Center. Though modified into an athletic center, all the original decorative detail on the walls and ceiling were preserved. In addition to the preservation of the structure, the world famous Wurlitzer organ is housed and still operational underneath the basketball court. The Arnold and Marie Schwartz Athletic Center became home to the LIU basketball and volleyball squads. Officially opening in 1963, it was the Blackbird's home until the opening of the Wellness, Recreation and Athletic center in 2006.

With the opening of the Wellness, Recreation and Athletic Center - now the Steinberg Wellness Center - in 2006, the Paramount Gym has become a multipurpose venue used by the university for events, shows, dinners, classes and intramural sports. Because of its unique history, majestic ceiling and hand carved wall fixture, the gym as become a site that outside businesses and the

Brooklyn Community love to use for events.

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### Downtown Brooklyn Speech- Language Hearing Clinic

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The Downtown Brooklyn Speech-Language-Hearing Clinic, located in the Fort Greene/Downtown Brooklyn community, is a vital part LIU-Brooklyn's graduate program in Communication Sciences and Disorders. Our state-of-the-art center employs speech-language pathologists who serve as clinical faculty and supervisors to our graduate interns. Clinical staff are licensed by the NY State Office of the Professions, and certified by the American Speech-Language-Hearing Association (ASHA) and the New York State Department of Education. The graduate program is accredited by the Council on Academic Accreditation of ASHA.

If you believe that you, or someone you know, has a speech-language, swallowing or hearing problem, call us at 718-488-3480. Our fees for services are affordable. We also have a reduced fee schedule, if needed.

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### Kumble Theater for the Performing Arts

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Kumble Theater for the Performing Arts at LIU Brooklyn is a dynamic, state-of-the-art performance venue serving one of the most diverse campuses and communities in the country. It is designed to nourish artistic exploration and development by students and other emerging artists while providing the entire community greater access to an exciting range of quality classical and cutting-edge professional performances from around the world.

Impeccably crafted for the dramatic and technical demands of dance, music and theatrical productions, this elegant, 320-seat theater provides finely tuned acoustics and top-tier lighting, projection and other electronic capabilities. With a stage featuring a "sprung" floor extending to the seating area, the theater fosters an intimacy between performers and their audiences.

This extraordinary theater was made possible through the generosity of LIU Trustee Steven J. Kumble. It is part of an ambitious campus renovation that created an extensive performing arts complex also featuring a black box theater, dance studios and a glass-enclosed art gallery. Among other major supporters of the performing arts complex are the EAB/Citigroup Foundation, through former LIU Board of Trustees Chair Edward Travaglianti, LIU trustee emeritus Donald H. Elliott, former LIU trustee Bruce C. Ratner, the City of New York and the Independence Community Foundation.

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## Psychological Services Center

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**Seymour Pardo, Director  
718-488-1266**

At our Psychological Services Center, free and confidential personal counseling is offered to students by supervised doctoral candidates in Clinical Psychology. Students experiencing stress in relation to academic, social or family situations or students who simply feel they are not living up to their full potential for various reasons may benefit from speaking to someone at the center. Whether stress is interfering with a student's ability to do his/her best at school or is affecting the student's family or social life, talking can help. No one in or outside the university knows who comes to the center, except in the rare case of danger to self or other.

The Psychological Services Center is located on the fifth floor of the Pratt Building, room 510 and is open on Mondays and Thursdays 9 a.m. to 4 p.m., Tuesdays 11 a.m. to 4 p.m., and Fridays 10 a.m. to 3 p.m. Students can call to make an appointment or just stop by.

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## Steinberg Wellness Center / Wellness, Recreational & Athletic Center (WRAC)

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This 112,000 square foot facility supports the campus' 17 Division I athletic teams, provides a state-of-the-art workout facility and swimming pool for the campus community, and offers a broad array of health and wellness services to our students, faculty, and administrators, as well as the members of the LIU Brooklyn community at large.

Steinberg Wellness Center (previously called Wellness, Recreational & Athletic Center {WRAC}) features a 2,500 seat arena, which hosts the campus' Division I basketball and volleyball games, high school athletic events, and a variety of other special events. The fitness center includes state-of-the-art cardio and strength equipment, and a group exercise studio that includes free classes such as Pilates, yoga, hip hop dance, total body conditioning, salsa, Zumba and abs-workout classes. The facility also includes a 25-yard, eight-lane swimming pool and a rooftop track and tennis courts.

Steinberg Wellness Center encompasses the Health and Wellness Institute that provides activities and programs that promote good health and wellness behaviors that reduce health disparities and improve the quality of life for members of the campus community and the community at large. The Health and Wellness Institute houses one of New York City's only state-of-the-art HydroWorx 2000 therapeutic pool, which includes an elevating floor to allow for easy access and varied water levels, an underwater treadmill with speeds up to 8.5 mph, underwater video camera and viewing monitors, body weight-

support harness system, adjustable temperature control, and jets that propel water and can be used to resist movement and to challenge a person's balance.

The Center for Physical Rehabilitation is a state-of-the-art facility that offers a wide range of physical therapy services to the LIU Brooklyn community as well as to residents of the surrounding community. The Center provides a "hands-on" approach for a broad array of physical issues and offers a customized treatment plan that is tailored to your specific health needs. We pride ourselves on delivering individualized care by licensed physical therapists who are experts in treating a diverse client population.

The Harriet Rothkopf Heilbrunn Academic Nursing Center is also located in the cellar level of the Steinberg Wellness Center. The HRH Academic Nursing Center's mission is to reduce health disparities among high-risk populations by providing accessible and affordable, primary, secondary and tertiary prevention activities focusing on risk assessment, education, counseling, and referral for vulnerable, underserved populations in downtown Brooklyn including the students and employees of LIU Brooklyn. The center provides free health screenings, programs to monitor existing health conditions, mammogram and HIV testing and counseling and support programs.

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## Student-Run Businesses

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LIU students learn what it takes to run a business by running a business. Students are involved in every facet of operations, from product selection and marketing to sales management and bookkeeping. Profits from LIU's student-run businesses support student scholarships, along with new business initiatives to create real-world business experiences for more students.

### Brooklyn Treat Shoppe

Located in the Library Learning Center on the third floor, the Brooklyn Treat Shoppe offers a wide range of options to satisfy your snack craving, from baked goods and candy to healthier options like fruit and baked chips, along with an array of beverages that includes iced coffee and coconut water.

### Browse

Browse offers a selection of popular technology brands and products, and is an authorized Apple products retailer. Students will find all the tools they need to power their LIU Brooklyn experience, from tablets and notebooks to all-in-one desktop computers and gaming consoles, as well as accessories. Students will benefit from the IT help desk, which they can use as a resource for technological needs and questions. In addition, students working in the store will gain expertise as they work alongside certified Apple service help desk technicians.

Browse is a Dell university campus store and special discounts are available for LIU Community

members.

### Healthy Choices

Healthy Choices is LIU Brooklyn's newest student-run business, located on the third floor of the Library Learning Center. The shop offers wholesome food, including many kosher-friendly items, and is managed by students under the direction of the Center for Entrepreneurship.

## STUDENT SERVICES AND RESOURCES AT LIU BROOKLYN

This section provides brief descriptions of services and resources that are available at LIU Brooklyn. It is not intended to be comprehensive but rather is presented as a selection of those services and resources that may be of particular interest to students of LIU Pharmacy.

LIU offers a variety of support services to aid students in achieving their personal and professional goals and make the most of their educational experience. This includes programs designed to serve a diverse variety of students at various stages of their development and address a broad range of individual needs and challenges.

LIU Promise primarily works with first-year students as well as some transfer students and continues to provide guidance and support through graduation. Graduate students and some upper-class students are served through the Office of Enrollment Services as well as advisors within their home departments. Working in concert, LIU Promise, Enrollment Services and Campus Life strive to accommodate the entire LIU student body and promote student retention.

Using the My LIU portal at <https://my.liu.edu>, you can view your financial aid status and account activity, make online payments, schedule appointments with LIU Promise Success Coaches or Enrollment Services Coaches, and view "to do" items and "holds" that need to be resolved to continue the enrollment process. Additionally, LIU Promise Success Coaches and Enrollment Services Coaches will provide both you and your family continuous support and service throughout your time as an LIU student.

## Alumni Community

### Office of Development and Alumni Relations 718-488-1016

The Office of Development and Alumni Relations is dedicated to advancing LIU's mission of access and excellence. Guided by the university's strategic priorities, the office nurtures lifelong relationships with alumni, parents, friends, and organizations that result in volunteer engagement and philanthropic support. All students of LIU Brooklyn are members of the alumni community upon graduation.

### Alumni Benefits

*The alumni community of LIU receives access to a lifetime of benefits designed to keep alumni connected to one another:*

### Furthering Your Education

- **Graduate Admissions Preparedness Program (GAPP.)** GAPP permits alumni who have held their degrees for two years or longer to register for a lifetime maximum of 12 credits in credit-bearing undergraduate courses for

which prerequisites have been completed. Students can take no more than 2 courses per semester, and must complete their work over 3 consecutive terms. A \$200 registration fee is required per semester, but tuition is waived.

- **Lifetime of Learning:** Lifetime of Learning is a program which enables alumni to audit courses for pleasure and enrichment. For a fee of \$100 per semester, and with permission of the instructor, you may take up to two courses.
  - **Graduate Alumni Award:** Graduates with a 3.0 GPA who want to pursue their first master's degree are eligible for a \$1,500 scholarship each semester if they maintain a 3.0 cumulative average. Students must enroll in six credits per semester.
- Paying it Forward**
- **Legacy Alumni Scholarship:** Children or siblings of alumni are eligible for the legacy alumni scholarship award for up to \$1,500 each semester in their first year if they maintain a 3.0 cumulative average.
  - **Summer Camp Discount:** Enjoy a one-time 15% discount at LIU Post Youth Camps and the Children's Academy at LIU Brooklyn.

### Visiting Campus

- **Enjoy the Performing Arts:** alumni receive a 10% discount at the Tilles Center for the Performing Arts at LIU Post and receive discounted tickets at the student price at Kumble Theater for the Performing Arts at LIU Brooklyn.
- **Stay Healthy:** alumni receive a discounted \$345 membership fee to join the Pratt Fitness & Recreation Center at LIU Post and the Steinberg Wellness Center / Wellness Recreation and Athletic Center (WRAC) at LIU Brooklyn.
- **Library Resources:** alumni receive access to LIU's large and diverse university libraries and computer labs, including a 10% discount at the campus bookstores.

### Retail Discounts

- **PerksConnect Card:** access to PerksConnect which provides discounts to local and national retailers. Visit [www.perksconnect.com](http://www.perksconnect.com)
- **GEICO:** alumni receive discounted insurance through GEICO, visit [www.geico.com/alum/liu](http://www.geico.com/alum/liu)
- **Bloomberg Businessweek:** save up to 90% off your subscription, visit [www.businessweek.com/subscribe](http://www.businessweek.com/subscribe). Use code: LIU.
- **Discovery Times Square:** save \$5 on adult/senior tickets and \$2 on child tickets at Discovery Times Square in NY.
- **Kaplan Test Prep:** save 10% on Kaplan Test Prep Courses including the GRE, GMAT, LSAT and MCAT. Use discount code: LIUAlumni10.

All LIU Brooklyn alumni are encouraged to support the Fund for LIU, which provides assistance to LIU students in need through vital financial aid programs.

To obtain an alumni identification card, update

your contact information, or to learn more about benefits and volunteer opportunities, please contact the Office of Development and Alumni Relations at 718-488-1016 or email [bklnalumni@liu.edu](mailto:bklnalumni@liu.edu). The office is located in the Metcalfe building, room M101.

## Bookstore

### LIU Brooklyn Bookstore - Your Official Campus Bookstore

- Location: Between Humanities Building and Richard Connolly Hall
- Payment Methods: Financial Aid Vouchers, LIU Wallet, Cash, Barnes & Noble Gift Card, and All Major Credit Cards.
- Regular Store Hours: Monday – Thursday 9:30 a.m. – 6:30 p.m. and Friday 10 a.m. – 3 p.m. (We have extended hours during the first two weeks of classes and reduce hours during the summer and intercession.)
- We're Open 24/7; Online: [www.liunet-brooklyn.bncollege.com](http://www.liunet-brooklyn.bncollege.com)

### We Speak Textbook

- Rent or Buy New, Used, and Digital Textbooks
- When You Rent or Buy Textbooks From the LIU Brooklyn Bookstore, You're Guaranteed:**
- The Right Textbook (we work directly with the professors to get the right titles on the shelf and on our website.)
  - Rent or Buy Textbook Online for In-Store Pickup or we can Ship Directly to you
  - To Save the Most Money Upfront, Rent Your Textbooks and Save an Average of 50 Percent
    - Highlight, Take Notes, and Make Them Your Own, Plus We'll Send You Reminders When Your Rentals are Due Back.
  - Buying Your Books?
    - Save up to 25 Percent with Used Textbooks
    - Sell us Your Used Textbooks During Finals Week and Get up to 50 Percent Cash Back.
  - Go Digital with Yuzu
    - Yuzu by Barnes and Noble Lets You Organize and Read Your Digital Content on Your iPad and PC. Learn More About Yuzu; [www.yuzu.com/college](http://www.yuzu.com/college)
  - Need to Return a Textbook
    - A Full Refund is Given During the First Week of Classes. The Book Must be in its Original Condition and you Must Have your Register Receipt or Online Invoice/Order Number.
    - A Full Refund is Given During the ADD/DROP Period. The Book Must be in its Original Condition and you Must Have your Register Receipt or Online Invoice/Order Number.

### We Have Everything You Need to Succeed

- School Supplies
- Pentel, Bic Papermate Pens/Pencils, Oxford Index Cards, Five Star Notebooks, Etc.
- Technology & Electronics
- HP, Texas Instrument, Case Logic, Etc.
- LIU Brooklyn Apparel & Gifts

- Under Armour, Champion, Jansport, Alta Gracia, Etc.
- Snacks & More
- Energy Bars, Candy Bars, Beverages, Burts Bees, Etc.

#### Join Our Team

- Fun Environment
- Earn Competitive Wages in a Professional Working Environment; Apply Online: [www.bnccollegejobs.com](http://www.bnccollegejobs.com)
- Employee Discount
- Discount on Textbooks and Other Bookstore Merchandise
- We're Flexible
- We'll Partner with you to Create a Work Schedule that Works with Your Classes
- Location - We're Right on Campus, Near Everywhere Else You Need to be

Join our students loyalty program and save 25% on one LIU apparel Item.

To sign up, visit: [www.welcomeclassof.com](http://www.welcomeclassof.com)

## Center for Learning and Academic Success

**Dr. William Burgos, Director**

**718-488-1094**

**Location: LLC, 4th Fl.**

**Hours: Monday – Thursday, 9 a.m. - 7 p.m.**

**Friday, 9 a.m. - 5 p.m.**

Online Tutoring Available, various hours 7 days a week, through Blackboard.

The Center for Learning and Academic Success (CLAS), located in the Library Learning Center, on the 4th Floor, offers quality one-on-one and small-group tutoring across the disciplines to undergraduates of LIU Brooklyn. We provide assistance in mathematics, business, languages, and the humanities, as well as the social, physical and health sciences. Tutoring sessions are designed to supplement in-class work and focus on providing opportunities for active learning, self-reflection, and collaborative study. Tutors, acting as educational mentors rather than instructors, focus not on teaching content and completing homework assignments, but on posing problems and putting course subjects into practice through critical thinking and re-examination. We want to help you become a better learner. We offer weekly one-on-one or small-group sessions, walk-in tutoring sessions, online tutoring, targeted group workshops, study skills support, mid-term & final exam review sessions, and assistance with forming study groups.

## Enrollment Services

Incoming LIU students who are not assigned a Student Success Coach are assigned an Enrollment Services Coach. Enrollment Services Coaches guide and assist transfer undergraduate students as well as graduate students from their first semester at LIU to graduation. This includes creating a plan

of study, keeping up with academic progress and degree requirements, as well as managing financial aid issues. Additionally, Enrollment Coaches help students plan for their career after graduation.

Students are responsible for registering for classes through the My LIU student portal. As such, they should stay in close contact with their Enrollment or Success Coach to plan for their enrollment date.

Students with questions regarding the academic counseling program should contact Enrollment Services at 718-488-3320.

## First Year Seminar (FYS 1)

### 1 credit course

The First Year Seminar is designed to help first-year freshmen and transfer students' transition into successful members of the LIU community. This includes developing critical thinking, reading and reflective writing skills through the incorporation the Common Read and the creation of a digital portfolio. The course is also meant to refine students' approach to college learning and instill a respect and appreciation for the value of a liberal arts and science education.

The First Year Seminar is taught by instructors from various LIU departments, including faculty members, Success Coaches and administrators, who work in cooperation with their students' respective coaches to ensure a successful transition to life at LIU.

## Information Technology

**George Baroudi**, Vice President for Information Technology & CIO

Information Technology's (IT) role has transformed from being two divisions of academic computing and administrative computing services into a single unit that facilitates and fosters technology innovations across the institution – moving the university ahead of the technology curve to build a competitive edge in higher education and to offer modern tools to our students, faculty, staff members and administrators.

The Office of Information Technology is responsible for managing all aspects of the university's information technology operations, including academic and administrative systems and computing, databases, dashboards, networking, audiovisual, video and telecommunications infrastructure, academic computer labs and smart classroom spaces. IT maintains 30,000 internet-capable devices and 826 analog/digital telephones and 859 Cisco IP phones. That includes fiber optic and copper infrastructure throughout the buildings, firewall and security access, and wireless internet access. IT provides off-site facilities support to Hanover, Hoyt and Fulton Street residence halls, Steinberg Wellness Center, the Steiner Studios at the Navy Yard

(screen writers program), Westchester and Rockland campuses. IT also maintains the campus' security camera systems, electronic door locks to all dorms and most classrooms, cafeteria and retail space cash registers, Kronos Timekeeper for the facilities staff, campus videoconferencing and campus plasma displays, electronic and web signage.

Information Technology also provides oversight for university-wide information systems, compliance and security in accordance with policies set forth by University Counsel. Information Technology collaborates with Academic Affairs to implement a unified, comprehensive learning management system and online education initiatives. Information Technology also manages business process improvement initiatives across the university.

As a further extension of the university's commitment to providing students with unique, real-world learning opportunities, LIU Information Technology recently opened the doors to **Browse**, LIU's on-campus technology store, an authorized technology products retailer that offers popular technology brands and products, from tablets and notebooks to all-in-one desktop computers and gaming consoles, as well as accessories, at discounted rates for LIU faculty, students, and staff with a valid LIU ID. Students who are hired in Browse as store associates play an important role in the Browse's day-to-day operations and gain professional skills as they work alongside certified service help desk technicians. Students have the opportunity to learn about retail, customer service, business management, entrepreneurship, small business operations, supply chain management, e-commerce, as well as networking and technology troubleshooting, work experience that helps students to build a professional résumé prior to graduation. Students are encouraged to come to Browse for helpdesk support issues.

Faculty members have a specialized resource: the Faculty Technology Resource Center. The FTRC locations at each campus facilitate utilization of the Blackboard learning management system along with other teaching and learning tools. The FTRC provides consulting, design, and programming for custom multimedia applications, digitization of educational resources, and provide and maintain public work spaces created specifically for faculty curricular development and staff technology training use. The FTRC staff is available for individual consultation, and also offers workshops and presentations in the latest uses of technology in the classroom.

### My LIU

My LIU portal provides students with convenient access to information about their records. By logging onto <https://my.liu.edu>, students may view their schedule of classes, register for courses, obtain their grades, request transcripts, and apply for graduation. They may also view financial aid awards, billing information, make online payments, accept and decline federal

loans and Federal College Work Study, and make an appointment to see counselors. For more information, please visit or contact Browse.

### Student email

Each student is assigned a university email address to use for corresponding with university faculty and staff. Students can check their email by logging into <https://my.liu.edu>. If you have any trouble accessing your My LIU account, please check with the helpdesk at Browse at LIU Brooklyn on Dekalb Avenue.

**IT Website:** <http://it.liu.edu>

**IT Email:** [IT@LIU.edu](mailto:IT@LIU.edu)

**Phone:** 718-488-3300

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## International Student Services

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**Steve A. Chin, Director**

**Phone:** 718-488-1389

**Fax:** 718-780-6110

**Email:** [steve.chin@liu.edu](mailto:steve.chin@liu.edu)

The Office of International Student Services provides special services to students from abroad and responds to their unique needs and problems. It gives information and sees to it that the resources available on campus are being used. It also guides and helps students with immigration and personal matters. All international students are required to contact the Office of International Student Services as soon as possible after registration. Special orientation programs are given during the fall and spring semesters. The office is a source of reference for international students on F-1, M-1 and J-1 visas.

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## LIU Promise

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### You'll Succeed. We Promise.

The LIU Promise is our commitment to ensuring you have the right tools, guidance and support to achieve your goals. When you apply to LIU, you will be assigned an LIU Promise Success Coach who will be there for you through graduation. Your coach will be the point of contact for everything you need—from academic and career counseling to campus activities to financial aid. It's our promise to help you chart your success!

Your LIU Promise Success Coach will work with you one-on-one to:

- Fast-track the enrollment process
- Help you select the right major
- Find the right scholarship for you
- Construct a financial plan to fund your education
- Introduce you to our vibrant campus life
- Identify internships and study-abroad opportunities
- Create an e-portfolio to showcase your work
- Launch your career, connecting you with employers before graduation

LIU Promise Career Success provides a comprehensive array of career services and programs to help LIU Brooklyn students navigate the career planning process and prepare for their

professional careers. Students should meet with a coach often during your college years to successfully navigate the career planning process and utilize LIU Career Connect, our online internship/job database and career management system.

### Contact LIU Promise

Sloan 102, 1 University Plaza

718-488-1039

[bkln-promise@liu.edu](mailto:bkln-promise@liu.edu)

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## Mathematics Center

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**Dung Duong, Assistant Director**

**718-246-6317**

**Hours: Monday – Thursday: 10 a.m. – 7 p.m.**

**Friday: 10 a.m. – 5 p.m.**

**Saturday: 10 a.m. – 3 p.m.**

The Mathematics Center, located in room M-1105, offers students the opportunity to develop basic mathematics skills required for mathematics problem solving, as well as logical and analytical thinking by offering the non-credit courses DSM-01 and DSM-09. Tutors are available as well as opportunities to learn how to use software in personal computers. The Mathematics Center is a place where all students will be able to enhance their knowledge and understanding of mathematics. All students are able to visit the Mathematics Center to obtain free tutoring. The Mathematics Center provides help and tutoring for all students taking freshman level mathematics for academic credit. The Mathematics Center is not only a place for students with mathematics related problems on specific subjects; it is also a challenging work site for advanced students in all areas of studies where mathematics is involved. The Mathematics Center always welcomes walk-in students. In addition, individual tutors are available to assist with the use of software applicable to other areas of study – biology, chemistry, physics, pharmacy – offering useful tools for a better analysis and understanding of those disciplines. All students are eligible to participate, either voluntarily or upon instructor referral.

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## Modern Language Center

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**718-488-1323**

The Modern Language Center offers both intensive and non-intensive English language programs for international students, immigrants and refugees who wish to improve their language skills. Classes are given mornings and evenings, Monday-Thursday, throughout the year; F-1 (student) visas and financial aid are available for qualified students. The Modern Language Center is located in the Library Learning Center, 4th Floor.

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## Multimedia Language Laboratory

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**Peter Kravsky, Associate Director**

**718-780-4568**

**Location: LLC-021**

The Multimedia Language Laboratory enables students of foreign languages as well as English as a Second Language (ESL) to improve their language skills at their own pace, either individually or collaboratively, using a full range of interactive language learning software. The Language Laboratory provides a learning environment where students can:

- test their comprehension on any items covered in class,
  - check their understanding of grammar and spelling,
  - read a variety of material and check their comprehension of vocabulary and content,
  - practice pronunciation and listening comprehension through viewing and hearing material in the target language.
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## Student Support Services

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**Dr. Joanne Hyppolite, Director**

**718-488-1215**

Student Support Services is a federally funded TRIO program which aims to encourage and assist students who are traditionally under-represented (first generation, low income) in postsecondary education, as well as provide qualified students with disabilities with appropriate academic accommodations and support needed to ensure equal access, in the preparation for, entry to, and completion of a post secondary degree.

The Office of Student Support Services provides opportunities for academic development with the aim of increasing the retention and graduation rates of its students. This is done by:

- Pairing all registered students with an education specialist who will guide and work with them for the duration of their academic career
- Ensuring that all students receive academic tutoring and instruction in areas such as reading, writing, math and science
- Routinely monitoring the academic progress of its students
- Identifying current and potential problem areas, devise and implement interventions and make appropriate referrals
- Acting as a liaison for students with disabilities
- Improving financial and economic literacy

### Disability Support Services

In order to receive accommodations under the Americans with Disabilities Act a current or incoming student must:

- have a physical or mental impairment which substantially limits any major life activity
  - have a record of such an impairment
  - be regarded as having such an impairment
- Students who wish to receive accommodations



must self identify to the Office of Student Support Services.

For additional information please contact our office at the number above or visit our website [www.liu.edu/Brooklyn/StudentLife/SSS](http://www.liu.edu/Brooklyn/StudentLife/SSS).

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## Testing Center

**Andres Marulanda, Director**  
718-488-1392

**Location: Pratt, Suite 110**

**Hours: Monday – Thursday, 9 a.m. - 6 p.m.**

**Friday, 9 a.m. - 5 p.m.**

The Testing Center is committed to provide a nurturing, informative environment for students taking the LIU Brooklyn Placement Examination or other examinations deemed necessary by the university community. The placement examination is administered on campus or electronically through the Online Writing Assessment. Our Testing Center supports student success by ensuring that entering students are placed in appropriate English and mathematics courses. Other examinations administered by the center include retests and exemption exams such as the Math 10 and language exams, Ability-to-Benefit exams required for some students for financial aid and exams to fulfill the core curriculum computer literacy graduation requirement. Support and appropriate arrangements are available for out-of-state students or applicants with qualifying disabilities.

The Testing Center works collaboratively with the campus community and supports academic departments by providing testing and proctoring services. The office administers the Teaching and Learning Assessment, the HESI A2 Nursing exam, diagnostic tests including the ASSET and Accuplacer exams, and other professional and certification examinations including the CST, CPT, and CSCS, among others.

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## Veteran Services

LIU Brooklyn has a proud and distinguished history of serving its nation's military veterans and active duty service members. Our supportive community of staff and faculty is dedicated to seeing you succeed in your education, your career and your life. To accomplish this mission, LIU Brooklyn provides the resources you need to pursue your education while balancing the demands of life both inside and outside the classroom.

For additional information, our Veterans School Certifying Official can be reached at 718-488-1013 or 718-488-1587 or by email: [bkln-militaryveterans@liu.edu](mailto:bkln-militaryveterans@liu.edu).

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## Writing Center

**Patricia Stephens, Director**  
**Lynn Hassan, Associate Director**  
718-488-1095

**Hours: Monday-Thursday: 9 a.m.-8 p.m.**

**Friday: 9 a.m.-5 p.m.**

**Saturday: 10 a.m.-4 p.m.**

The Writing Center, located in Room H-218, offers one-on-one and small group tutoring to all LIU Brooklyn students. Its mission is to help students become better writers over time. Tutors work with students at all stages of the writing process: understanding an assignment, drafting an essay, learning more effective reading strategies, developing and supporting arguments, and learning how to proofread and edit papers. Students may register for ongoing weekly 50-minute sessions, one-time appointments, or distance tutoring. The Writing Center also serves as an on-campus resource and reference center for writing instruction and, through its Student Writing Group Project, works closely with the Writing Across the Curriculum (WAC) program, offering in-class writing workshops across the disciplines. Students registered at the Writing Center are welcome to use the dual-platform computer lab.

## POLICIES AND REGULATIONS AFFECTING STUDENTS

This section is provided for informational purposes. It should not be construed to be a comprehensive presentation of all policies and regulations that affect students of LIU Pharmacy but rather as a distillation of those policies and regulations of which every student should be aware.

### Standards of Professional and Ethical Behavior

#### Academic Ethics

Students are expected to conduct themselves in accordance with the highest academic standards of honesty and integrity. The acts of, or the intent to engage in the acts of, cheating, plagiarism, illegitimate possession and/or disposition of examinations, and similar acts, are grounds for suspension or dismissal from the university. Students are advised that plagiarism consists of any act involving the offering of the work of someone else as the student's own, including the use of work authored by a paid or volunteer person or organization contracted by the student. Students participating in experiential courses must adhere to all rules and regulations of the specific hospital, long-term care facility, industry site, etc.

### LIU Pharmacy Honor Code

#### I. Statement of Philosophy

As students enrolled in a professional program, pharmacy students of LIU Pharmacy represent the university, the college, and the profession of pharmacy. As such, it is imperative that students conduct themselves in a professional manner, both academically and in any other situation where they are viewed as representatives of the university, the college, and/or the profession. It is imperative that pharmacy students shall be of good moral character and recognize a responsibility to participate in activities contributing to an improved community. Pharmacy students caring for patients must not be harmful, dangerous or negligent to the welfare of the patient. Therefore, standards of professional and ethical behavior have been developed as a guide for students to prepare them to meet the standards of the profession of pharmacy.

With all professions, it is the responsibility of the individual to be aware of all applicable standards (including academic, professional, ethical, and legal) and to follow them to the best of his/her ability at all times. Not knowing these standards is considered to be unprofessional, and does not provide defense in the case of errors in practice or unprofessional behavior. Therefore, each pharmacy student is required to become

aware of and follow these standards, and adhere to the rules and regulations of the university, LIU Pharmacy, the experiential practice sites, and the profession of pharmacy. The elements of the professional commitment required of pharmacy students are outlined in the Pledge of Professionalism taken by pharmacy students, which reads as follows:

“As a student of pharmacy, I believe there is a need to build and reinforce a professional identity founded on integrity, ethical behavior, and honor. This development, a vital process in my education, will help ensure that I am true to the professional relationship I establish between myself and society as I become a member of the pharmacy community. Integrity must be an essential part of my everyday life and I must practice pharmacy with honesty and commitment to service.

To accomplish this goal of professional development, I as a student of pharmacy should:

**DEVELOP** a sense of loyalty and duty to the profession of pharmacy by being a builder of community, one able and willing to contribute to the well-being of others and one who enthusiastically accepts the responsibility and accountability for membership in the profession.

**FOSTER** professional competency through life-long learning. I must strive for high ideals, teamwork and unity within the profession in order to provide optimal patient care.

**SUPPORT** my colleagues by actively encouraging personal commitment to the Oath of Maimonides and a Code of Ethics as set forth by the profession

**INCORPORATE** into my life and practice, dedication to excellence. This will require an ongoing reassessment of personal and professional values.

**MAINTAIN** the highest ideals and professional attributes to ensure and facilitate the covenantal relationship required of the pharmaceutical care-giver.

The profession of pharmacy is one that demands adherence to a set of rigid ethical standards. These high ideals are necessary to ensure the quality of care extended to the patients I serve. As a student of pharmacy, I believe this does not start with graduation; rather, it begins with my membership in this professional college community. Therefore, I must strive to uphold these standards as I advance toward full membership in the profession of pharmacy.”

The standards of academic conduct, outlined in the sections that follow, apply not only to students enrolled in the professional program, but also to students enrolled in any of LIU Pharmacy's graduate programs. As such, violations of the Honor Code by students enrolled in these programs are handled in a manner similar to that of students enrolled in the professional program.

#### II. Academic Integrity

Students shall deal honestly with people, including colleagues, faculty, university representatives, patients, and health-care

providers. Students are expected to demonstrate honesty and integrity throughout all aspects of their education. Specifically, students are responsible for:

- Understanding the types of conduct that are deemed unacceptable and, therefore, are prohibited by this policy
  - Refraining from committing any act of cheating, plagiarizing, facilitating academic dishonesty, abusing academic materials, stealing, professional misconduct, or similar activities
  - Maintaining a “duty to report” every instance in which students may have knowledge that academic misconduct has occurred; the student must report any infraction of the Honor Code to a faculty member or other appropriate authority (i.e., course coordinator, preceptor, etc.)
- Examples of academic dishonesty include, but are not limited to, the following:

#### *Cheating*

- Use of unauthorized assistance during recitation sessions, quizzes, examinations, or pharmacy practice experiences
- Dependence upon the aid of unauthorized sources in writing papers, solving problems or completing other assignments
- Acquisition or possession, without permission, of examinations or other academic material belonging to a member of the university faculty or staff
- Multiple submission of work by a student that has been used in an identical or similar form to fulfill any academic requirement at the university or any other practice site
- Provision of assistance to others who are participating in the behaviors or activities mentioned above

#### *Plagiarism/Copyright Infringement*

- Paraphrasing without properly crediting the author(s) with footnotes, citations, or bibliographical reference or direct quotation of the work of others without applying quotation marks, and fully and properly crediting the author(s) with footnotes, citations, or bibliographical reference
- Use of materials prepared in collaboration with others without release in writing from the collaborators
- Reproduction of copyright material (e.g., textbooks, handouts, examinations) without obtaining written permission from the copyright owner
- Web-casting/taping or emailing lectures without permission of the faculty member or instructor

For further information about what constitutes plagiarism, the student is referred to: <https://owl.english.purdue.edu/owl/section/3/33>.

*Other*

- Falsification of signatures, transcripts, grade reports, attendance records or other official documents
- Provision of false information regarding a missed examination or assignment
- Providing a false statement to any instructor in an attempt to gain an advantage or exceptions <https://o>
- Reusing, possessing, photocopying, selling, stealing, or soliciting, in its entirety or in part, of instructor-prepared examinations, lecture materials or assignments unauthorized for release to all students

*Academic Dishonesty Related to Clinical Practice*

- Falsification of a patient's medical records or providing fabricated information regarding a patient's medical status or treatment presented either verbally or in writing
- Multiple submission of assignments from various practice sites

*Abuse of Academic Materials*

- Destroying or making inaccessible academic resource materials. Examples include, but are not limited to the following:
- Destroying, hiding, or otherwise making unavailable for common use library, computer, personal digital assistants (PDAs), or other academic reference materials
- Destroying, hiding, or otherwise making unavailable, another's notes, experiments, computer programs, or other academic work

*Representation*

A pharmacy student shall accurately represent himself/herself to others, including, but not limited to, colleagues, faculty and staff of the university, patients, preceptors, and other health-care providers.

**III. Professional Integrity**

A student must not be harmful, dangerous, or negligent to the mental or physical health of patients, colleagues, faculty, or the public. Students must be familiar with and abide by the rules and regulations of their assigned experiential practice sites, as well as federal, state, and local laws pertaining to the practice of pharmacy.

*Demeanor*

The student is expected to be thoughtful and professional when interacting with faculty, patients and their families, physicians, preceptors, other students, and other members of the health-care team. Likewise, students must be respectful of and adhere to LIU Pharmacy's rules and regulations.

Inappropriate behavior includes, but is not limited to:

- Absence from, or lateness to, required College professional activities
- Use of offensive language or gestures
- Intimidation or coercion of fellow students,

faculty, staff, and patients

- Posting of offensive and/or unauthorized material on websites where the students are identified as being from LIU Pharmacy
- Defacing university property

Members of LIU Pharmacy are expected to comply with the College policies regarding food and drink in the classroom or clinical setting.

Smoking is not permitted in any part of the LIU Pharmacy indoor facilities.

*Appearance*

Students shall maintain a neat, clean appearance, and dress in attire that is appropriate for the setting. While in practice experiences and during official college professional events, students must be dressed in professional attire. For men, this includes a dress shirt, tie, and dress slacks or neat-appearing khaki pants. Women should be similarly appropriately and conservatively attired such as in a blouse with skirt or dress pants, or in a dress. Sneakers, open-toe shoes of any kind, work boots or shoes that look like work boots, T-shirts, shorts, and jeans of any color are examples of what is not permitted. In the classroom, students should be dressed in clothes that are clean and neat and are not considered offensive or embarrassing to the faculty or students. Additional/specific dress code requirements may be outlined in individual course syllabi.

*Impairment*

The student will not use alcohol or drugs in ways that impair his/her ability to perform required work or result in compromised patient care. When a student uses a medication that may impair his/her ability to care for patients, it is his/her responsibility to discuss this with his/her advisor, faculty member, or preceptor at the college or experiential practice site. Students should protect the public from an impaired colleague and assist an impaired colleague in receiving appropriate help with his/her drug or alcohol problem. Students must also refer to the Alcohol Policy and Regulations, detailed in the LIU Brooklyn Student Handbook.

In addition to the Honor Code, students are expected to follow the policies and procedures for criminal background check and drug screening policies for LIU Pharmacy and, when applicable, the affiliated experiential practice site.

**IV. Pledge of Honor**

All students are expected to sign the following Pledge of Honor upon matriculation to LIU Pharmacy:

"As a student of the Arnold & Marie Schwartz College of Pharmacy and Health Sciences of Long Island University, I will actively pursue behaviors that are consistent with professional conduct, as outlined in the college's Honor Code. I will maintain a professional relationship with faculty, colleagues, other health care providers, and

patients, and will maintain academic integrity, as outlined in the Code. I fully recognize that violation of any of the standards of the Code may result in disciplinary actions, including possible dismissal from the college."

Students are reminded that failure to sign this document does not relieve them from the professional and academic responsibilities set forth in the LIU Pharmacy Honor Code and/or other documents delineating student conduct and behavior.

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## LIU Pharmacy Violations of Standards of Professional and Ethical Behavior and Academic Integrity

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Students accused of violating the college's standards of professional and ethical behavior and academic integrity are subject, upon admission of the same, to disciplinary action. Disciplinary actions may include suspension or dismissal from LIU Pharmacy or specific forms of remediation, such as completion of a course on ethics, service requirements to the college or other not-for-profit or charitable organizations or agencies as the college may specify. In cases where the student denies the accusations a Disciplinary Committee consisting of members of the faculty and student representation will be convened to hear the accusations and hear defense on the part of the student. All parties involved may request the presence of other individuals with knowledge pertinent to the case to present evidence. The Disciplinary Committee will present its finding of fact and recommendations as to the disposition of the case to the assistant dean for academic and student affairs (or the associate dean for students enrolled in the college's graduate programs). Students are advised that they may request the presence of counsel for said hearings only for purposes of observation and advisement. Counsel is not afforded the opportunity to question those appearing before the committee or to advocate on behalf of the student. Decisions of the Disciplinary Committee and/or the assistant dean for academic and student affairs (or the associate dean for students enrolled in the college's graduate programs) that the student believes may demonstrate arbitrary and capricious treatment or to be fundamentally unfair may be appealed, as a final step, to the dean of LIU Pharmacy.

### LIU Pharmacy Grievance and Disciplinary Procedure

Students at LIU Pharmacy may expect a scrupulous regard for their rights as students and individuals and should expect to be treated fairly and with courtesy by all members of the academic community. In any matter in which students feel that their rights have been violated, or in matters of serious dispute with members of the administration

or faculty, students may avail themselves of the following formal grievance procedure:

1. The student will write out a clear statement of the grievance.
2. The student may submit this statement to the staff member involved. The student will be given a written response within a reasonable time.
3. If the student is not satisfied with the response, or initially, if preferred, the student may submit a statement to the appropriate division director or department head. The director will review the matter and provide the student with a written response within a reasonable period of time.
4. After a student receives a response from the division director, a disciplinary committee may be convened upon the request of the student, the faculty member or the administration. This committee advises either the assistant dean for academic and student affairs (Doctor of Pharmacy students) or the associate dean (graduate students) regarding the matter; the respective dean's decision is then communicated to the concerned parties. The appropriate dean may initiate disciplinary proceedings upon request of a faculty member or division director.
5. If still not satisfied, the student may institute a formal complaint with the dean of the college in which he or she is enrolled. The dean will review the matter, hear the student and staff member where appropriate, and see that the proper action is taken.

This procedure shall be a formal grievance procedure for the resolution of all student grievances and disciplinary matters, including those alleging actions prohibited by legislation.

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## Policy for Student Complaints Relating to Accreditation Council for Pharmacy Education (ACPE) Standards, Policies and Procedures

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ACPE is required to demonstrate to the U.S. Secretary of Education its expectations regarding a program's recording and handling of student complaints. In addition, ACPE must demonstrate a link between its review of complaints and its evaluation of a program in the accreditation process. Therefore, ACPE has adopted the following policy: "The colleges and schools of pharmacy have an obligation to respond to any written complaints by students lodged against the college or school of pharmacy, or the pharmacy program that are related to the standards and the policies and procedures of ACPE. The college or school of pharmacy shall establish, implement and maintain a student complaint procedure that affords the complainant fundamental procedural due process. The college or school of pharmacy

should communicate the complaint policy to students. The college or school of pharmacy, or the pharmacy program, shall maintain a file that contains the written complaint, a written record of each step of the complaint procedure and the outcome, except as otherwise prohibited by state or federal law. The files shall be made available for inspection to ACPE at on-site evaluations, or otherwise at ACPE's written request. The findings of this inspection, and the resulting implication(s) to the accreditation of the professional program, shall be noted in the Evaluation Team Report." In order to comply with the ACPE policy regarding student complaints relating to ACPE standards, policies and procedures, the policy of LIU Pharmacy is to provide:

1. Student access to ACPE standards, policies and procedures
2. Communication of complaint policy to students
3. Procedure for student complaints

### Student Access, Posting and Communication of Policy

A copy of ACPE standards, policies and procedures and a copy of the LIU Pharmacy policy relating to this issue are available in the Office of the Dean. It is available for review by any student enrolled in LIU Pharmacy, but may not be removed from the Office of the Dean.

A copy of ACPE standards, policies and procedures is also available on the ACPE website, [www.acpe-accredit.org](http://www.acpe-accredit.org). The following shall serve as the notification to students of the complaint policy and the procedure for student complaints:

### Complaint Policy and Procedure for Student Complaints

The grievance procedure for students shall require a formal written complaint describing the specific violation of ACPE standards, policies or procedures. The written complaint should include a description of the ACPE standard, policy or procedure in question; grounds for appeal; a summary of the argument; and supporting evidence. This shall be delivered to the Office of the Dean of LIU Pharmacy. Upon receipt of a written complaint, an ACPE Grievance Committee, composed of the division directors, chairs of the Curriculum and Scholastic Committees, the associate dean for Academic and Student Affairs and a student representative, shall be convened to review the complaint. A formal, written reply to the student(s) from the Grievance Committee shall include an evaluation of the complaint, a description of any violations, and a proposal for any necessary corrective action. This process shall usually take no longer than 90 days. Decisions of the Grievance Committee that demonstrate arbitrary and capricious treatment or are fundamentally unfair may be appealed, as a final step, to the dean of LIU Pharmacy. This process is the sole avenue for student complaints regarding ACPE standards, policies and procedures.

A record containing student complaints and written records of the complaint procedure and outcomes shall be maintained in the Office of the Dean of LIU Pharmacy, and shall be available for review by ACPE or its representatives upon written request or in the process of an on-site evaluation visit.

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## LIU Pharmacy Statement on Religious Diversity and the Academic Calendar

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Religious diversity has formed a part of LIU Pharmacy's curricular and extracurricular programs since its founding. In order to advance religious diversity the college makes reasonable accommodations for students whose religious holy days coincide with their work schedules and classroom assignments. The college neither promotes any particular form of religion nor discriminates against students on the basis of their religious viewpoints.

College holidays are not religious holy days, although a religious holy day may from time-to-time coincide with a college holiday. The college attempts to make reasonable accommodations in its work assignments, test schedules, and classroom attendance in ways that do not unfairly burden students.

Students who notify the faculty of a religious holy day conflict in a timely manner shall be excused from class or other scheduled academic activity to observe a religious holy day of their faith. Where attendance is mandatory, students compelled by their religious convictions to refrain from attending class on specific days must notify their instructors no later than the third week or one week before the absence if a conflict occurs before that time.

Students who notify their instructors of a religious holy day conflict in a timely manner shall be permitted a reasonable amount of time to make up the material or activities covered in their absence, including examinations. Students who receive an exemption on religious grounds cannot be penalized for failing to attend class on the days exempted. The instructor may, however, appropriately respond if the student fails to satisfactorily complete any alternative assignment or examination.

In those cases where a request for an excused absence based upon a religious holy day conflict is denied by the instructor, a student may pursue a grievance under "LIU Pharmacy Grievance and Disciplinary Procedures" (posted above in Policies & Regulations affecting Students). Where a timely request is made but denied by the instructor, the grievance process shall be expedited as much as reasonably possible to ensure that a student pursuing a religious holy day accommodation is not unduly disadvantaged by the passage of time.

Students with attendance conflicts may be required to notify an instructor in writing. An

instructor who requires written notice must inform the class of this expectation in the class syllabus. An instructor may deny a student's request for an excused absence on the ground that the request was not made within a reasonable time period, that is, no later than the third week of class or one week before the absence if a conflict occurs before that time.

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## **LIU Pharmacy Official Correspondence**

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Every student is required to report his or her correct residential address to the LIU Brooklyn Office of Enrollment Services. This address must be the student's actual residing address while in attendance at LIU Pharmacy. Reporting the parent's address is not acceptable unless the student is currently in residence with the parent. Address changes should be submitted to the Office of Enrollment Services within three days of a change of residence.

Official correspondence from LIU Pharmacy that is intended for delivery by the United States Postal System by first class, third class or other classes of mail will be mailed to the address the student lists with the Office of Enrollment Services.

Official correspondence from the college is also regularly sent to students by electronic mail. Every student of LIU Pharmacy is considered to be on notice of the information contained in email messages sent by the college to the student's official email address. All students of LIU Pharmacy are assigned an official LIU email alias (firstname.lastname.@my.liu.edu) that serves as the official LIU email address. Official email correspondence from LIU Pharmacy is sent to that address.

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## **LIU Pharmacy Picture Student Identification**

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All students of LIU Pharmacy are expected to obtain and retain an official LIU Brooklyn student identification card that bears their individual photograph. In addition to other uses on campus, students in the college are expected to present this form of identification at the start of most examinations administered by the college.

**LIU BROOKLYN LIBRARY**

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Ingrid Wang, Associate Professor, Director;

Telephone: 718-488-1680

Fax: 718-780-4057

The LIU Libraries system serves a combined total of over 20,000 students and more than 600 full-time faculty members across residential and regional campuses. The university's libraries share many online resources that can be accessed from anywhere at any time via remote access including subscriptions to more than 99,000 online journals; 150 online databases; 155,000 electronic books; and 56,000 files of streaming media. These resources may be accessed via the LIU Brooklyn Library homepage at <http://www.liu.edu/brooklyn/library>.

Collectively, the libraries house approximately 675,000 print books and more than 14,000 non-print media items. The collections of all LIU libraries are listed in LIUCAT, the library catalog. Books, journal articles and other library materials owned by LIU's libraries not available at a particular campus can be requested through LIUCAT and through the intercampus library loan courier service. Items not available at LIU libraries can also be requested through interlibrary loan and brought to campus or delivered electronically.

The LIU Brooklyn Library houses a rich collection of books, periodicals, microforms, audio and videotapes, CDs and DVDs, pamphlets, and other materials in support of the campus' educational programs.

The reference collection, reference desk, paralegal collection and Technical Services departments are situated on the third floor of the Salena Library Learning Center. An information commons, consisting of clusters of computers, provides access to the databases, library catalog, and the Internet, all within a few steps of the reference librarians. These computers, as well as all other computers in the library, are also equipped with productivity software such as word processing, spreadsheet, and presentation programs.

The Periodicals department, with a collection of both print and microform titles, is located on the fourth floor, where digital microform readers and printers are available. The InterLibrary Loan, Special Collections, Rare Book Room, and the Electronic Services department are also located on the fourth floor.

The circulation desk, reserve collection, and the main book stacks are located on the fifth floor. The Media Center, housing the multimedia collection, media equipment and a group viewing room, is also on the fifth floor, as is the Library's Cyber Lab. The Cyber Lab is equipped with computers that provide access to databases, library catalog, and Internet as well as up-to-date word processing, spreadsheet, presentation and database programs. In addition, the Library's "smart classrooms" are located on the fifth floor.

Photocopying machines are available on all three floors of the Library.

The Library is a member of several consortia, which grant both reading and borrowing privileges to LIU students. The Library offers information literacy classes and curriculum-integrated instruction. Library faculty and staff are available to help faculty and students with reference questions and research strategies.

## PROFESSIONAL PROGRAM

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LIU Pharmacy — (the Arnold & Marie Schwartz College of Pharmacy and Health Sciences) offers a six-year Doctor of Pharmacy (Pharm.D.) degree program to prepare students for entry-level pharmacy practice. The program consists of two years of preprofessional studies (offered through LIU Brooklyn's Richard L. Conolly College of Liberal Arts and Sciences) and four years of professional studies.

## PROFESSIONAL PROGRAM FOR THE SIX-YEAR DOCTOR OF PHARMACY

[Program Code: 21294]

### Introduction

LIU Pharmacy offers a six-year curriculum leading to the entry-level degree of Doctor of Pharmacy (Pharm.D.). Students may enter the professional phase of the program in the Fall semester only.

The Doctor of Pharmacy is classified as a "doctor's degree-professional practice" by the U.S. Department of Education. It consists of at least six full-time years of academic study and includes two years of preprofessional and four years of professional preparation.

### Degree Requirements

*(For students entering the professional-phase (third-year) of the program beginning in Fall 2015 or after)*

Upon recommendation of the Faculty, and approval by the Board of Trustees, the degree of Doctor of Pharmacy is conferred by Long Island University upon a candidate who has completed the required curriculum, containing a minimum of 218-219 academic credits (depending upon admission status). Matriculants must maintain a cumulative and a professional phase grade-point average of at least 2.33 to remain in good academic standing. In addition, all students of LIU Brooklyn, including pharmacy students, are required to demonstrate computer proficiency as a requirement towards the attainment of a degree. All entering first-year students are encouraged to take the LIU Brooklyn proficiency examinations in computer literacy before registering. The examinations are administered by the LIU Brooklyn Testing Center and all students must successfully complete these examinations as part of the requirements for a degree. Transfer students are also required to pass these examinations or will be granted appropriate waivers at the time of the evaluation of their transfer credits.

All students of LIU Brooklyn must satisfy the requirements of the Writing Across the Curriculum Program (WAC). To fulfill the minimum WAC requirements, students must complete, in addition to English 16 and Core Seminar 50, at least one writing-intensive course in their discipline. The writing-intensive course for the Doctor of Pharmacy program is PHM 420 Principles of Health Behavior and Patient-provider Communication.

## The Profession of Pharmacy

Dramatic changes taking place in the health-care system are creating many new and exciting roles for pharmacists. The pharmacist is now not only responsible for the safe and effective distribution of prescription and nonprescription medication, but is also assuming the role of pharmaceutical therapy advisor and manager, having increasingly more patient-care responsibilities.

The entry-level pharmacist is expected to participate fully in the team-based management of the patient, including the rendering of independent clinical judgments. The pharmacist must be proficient in the search for and retrieval of information from the scientific literature, utilization of complex pharmacokinetic models to determine appropriate doses, development of individualized pharmaceutical care plans, communication with patients and health professionals, documentation of pharmaceutical interventions taking into account patients' knowledge, beliefs, and behavior, pharmaco-economic analysis of alternative pharmaceutical interventions, and justification of services billed to managed health-care organizations and other payers.

### Learning Outcomes

The Arnold & Marie Schwartz College of Pharmacy and Health Sciences has been a leader in pharmacy education since its founding in 1886. The college attracts a diverse student population and provides quality pharmacy education through its pursuit of excellence and innovation in teaching, scholarship, and service. The campus environment encourages and promotes creativity, innovation, and collegiality.

Consistent with the mission of Long Island University, the college maintains a strong commitment to access and excellence. In an effort to be consistent with national benchmarks and standards, the Curriculum Committee of the college periodically engages in a process of reviewing the learning outcomes of the program and ensuring that it adheres to these national benchmarks, guidelines and standards.

In July 2013, at the annual meeting of the American Association of Colleges of Pharmacy, members of the Center for the Advancement of Pharmacy Education (CAPE) presented the fourth iteration of the Educational Outcomes, titled as CAPE Educational Outcomes 2013 (prior iterations are CAPE Educational Outcomes 1992, 1998, and 2004). These Educational Outcomes are intended to be the target toward which the evolving pharmacy curricula are to be aimed at by colleges/schools of pharmacy and are part of the 2016 standards of the Accreditation Council for Pharmacy Education. Immediately after the publishing of the CAPE Educational Outcomes

2013, the college's Curriculum Committee engaged in a process of reviewing the CAPE Educational Outcomes 2013 and utilized it for developing new learning outcomes for the college. In a significant departure from prior years where the focus was solely on curricular endpoints, it was realized that the new learning outcomes will not only have to be "curriculum" based but also will need to include outcomes that can be achieved through co-curricular and extracurricular activities. During committee deliberations, it was identified that a detailed glossary of terms would be needed to assist stakeholders in defining specific terminologies. The glossary follows the learning outcomes.

The learning outcomes serve as the guiding framework for course/curricular review, development of co-curricular and extracurricular activities, mapping, assessment, and remediation efforts of the college. The outcomes are presented in four domains as outlined below.

#### Domain 1 – Foundational Knowledge

*1.1. Learner (Learner): Develop, integrate, and apply knowledge from the foundational sciences (i.e., pharmaceutical, social/behavioral/administrative, health, and clinical sciences) to evaluate the scientific literature, explain drug action, solve therapeutic problems, and advance population health and patient-centered care.*

#### Learning Outcomes

1.1.1. Develop and demonstrate depth and breadth of knowledge in pharmaceutical, social/behavioral/administrative, health, and clinical sciences.

1.1.2. Articulate how knowledge in foundational sciences is integral to clinical reasoning; evaluation of future advances in medicine and pharmacy; supporting health and wellness initiatives; and delivery of contemporary pharmacy services.

1.1.3. Integrate knowledge from foundational sciences to explain the way specific drugs or drug classes work and evaluate their potential value in individuals and populations.

1.1.4. Apply knowledge in foundational sciences to solve therapeutic problems and advance patient-centered care and population-based care.

1.1.5. Critically analyze and assimilate evidence from scientific literature related to drugs and disease to enhance clinical decision-making.

1.1.6. Identify, critically analyze, and assimilate emerging theories, information, and technologies that may impact patient-centered and population-based care.

#### Domain 2 – Essentials for Practice and Care

*2.1. Patient-centered care (Caregiver): Provide patient-centered care as the medication expert (collect and interpret evidence, prioritize, formulate assessments and recommendations,*



*foster patient support and empowerment, implement, monitor and adjust plans, and document activities).*

#### *Learning Outcomes*

2.1.1. Collect subjective and objective evidence related to the patient, medications, allergies/adverse reactions, and disease(s), by performing patient assessment (including physical assessment, screenings, and risk assessments scores when needed) from chart/electronic health records, pharmacist records, and discussions with other health professionals and the patient/family/care-giver.

2.1.2. Interpret evidence and patient data.

2.1.3. Prioritize patient needs.

2.1.4. Formulate an evidence-based care plan, assessment, and recommendation.

2.1.5. Implement and/or recommend patient care plans.

2.1.6. Monitor the patient and adjust the care plan as needed.

2.1.7. Document patient care related activities.

*2.2. Medication use systems management (Manager): Manage patient healthcare needs using human, financial, technological, and physical resources to optimize the safety and efficacy of medication use systems.*

#### *Learning Outcomes*

2.2.1. Compare and contrast the components of typical medication use systems in different pharmacy practice settings.

2.2.2. Describe the role of the pharmacist in impacting the safety and efficacy of each component of a typical medication use system (i.e., procurement, storage, prescribing, transcription, dispensing, administration, monitoring, and documentation).

2.2.3. Utilize technology that is a component to or of the medication use system.

2.2.4. Identify and utilize human, financial, and physical resources to optimize the medication use system.

2.2.5. Manage medication needs of patients during transitions of care.

2.2.6. Apply standards, guidelines, best practices, and established processes related to safe and effective medication use.

2.2.7. Utilize continuous quality improvement techniques in the medication use process and participate in identifying system errors and, when possible, implement solutions.

2.2.8. Demonstrate the ability to compound extemporaneous and commercially available dosage forms, dispense, and administer medications in a variety of healthcare settings.

2.2.9. Apply legal, ethical, and professional standards within a medication use system.

2.2.10. Apply the principles of human resource management to manage pharmacy personnel.

2.2.11. Demonstrate knowledge of and an ability to use medical informatics.

2.2.12. Demonstrate the ability to apply a systems approach to improve patient (medication) safety.

*2.3. Health and wellness (Promoter): Design prevention, intervention, and educational strategies for individuals and communities to manage disease and improve health and wellness.*

#### *Learning Outcomes*

2.3.1. Describe systematic preventive care, using risk assessment, risk reduction, screening, education, and immunizations.

2.3.2. Provide prevention, intervention, and educational strategies for individuals and communities to improve health and wellness.

2.3.3. Participate with interprofessional healthcare team members in the management of and health promotion for patients.

2.3.4. Evaluate personal, social, economic, and environmental conditions to maximize health and wellness.

*2.4. Population-based care (Provider): Describe the way in which population-based care influences patient-centered care and influences the development of practice guidelines and evidence-based best practices.*

#### *Learning Outcomes*

2.4.1. Assess the healthcare status and needs of a targeted patient population.

2.4.2. Develop and provide an evidence-based approach to care that considers the cost, care, access, and satisfaction needs of a targeted patient population.

2.4.3. Participate in actual or simulated population health management by evaluating and adjusting interventions to improve health.

### **Domain 3 --- Approach to Practice and Care**

*3.1. Problem Solving (Problem Solver): Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.*

#### *Learning Outcomes*

3.1.1. Identify and define all relevant problems.

3.1.2. Select between the primary as well as secondary problems.

3.1.3. Define goals and alternative goals.

3.1.4. Explore multiple solutions by organizing, prioritizing, and defending each possible solution.

3.1.5. Anticipate positive and negative outcomes by reviewing assumptions, inconsistencies, and unintended consequences.

3.1.6. Recommend and/or implement the most viable solution, including monitoring parameters, to measure intended and unintended consequences.

3.1.7. Reflect on the solution implemented and its effects to improve future performance.

*3.2. Educator (Educator): Educate all audiences by determining the most effective and enduring ways to impart information and assess understanding.*

#### *Learning Outcomes*

3.2.1. Conduct a learning needs assessment of constituents who would benefit from pharmacist-delivered education (e.g., patients/caregivers, technicians and interns, pharmacy students, fellow pharmacists, other healthcare providers, legislators).

3.2.2. Develop learning objectives.

3.2.3. Select the most effective techniques/strategies to achieve learning objectives.

3.2.4. Demonstrate the ability to coordinate educational efforts with other healthcare providers, when appropriate, to ensure a consistent, comprehensive, and team-based encounter.

3.2.5. Ensure instructional content contains the most current information relevant for the intended audience.

3.2.6. Demonstrate the ability to deliver educational messages via various techniques such as one-on-one discussions, oral presentations, and written materials.

3.2.7. Assess audience comprehension of the educational session.

*3.3. Patient Advocacy (Advocate): Assure that patients' best interests are represented.*

#### *Learning Objectives*

3.3.1. Empower patients to take responsibility for, and control of, their health.

3.3.2. Assist patients in navigating through the healthcare system.

3.3.3. Assist patients in obtaining the resources and care required in an efficient and cost-effective manner (e.g., triage to social and/or other healthcare services).

*3.4. Interprofessional collaboration (Collaborator): Actively participate and engage as a healthcare team member by demonstrating mutual respect, understanding, and values to meet patient care needs.*

#### *Learning Outcomes*

3.4.1. Establish a climate of shared values and mutual respect necessary to meet patient care needs.

3.4.2. Define clear roles and responsibilities for team members to optimize outcomes for specific patient care encounters.

3.4.3. Communicate in a manner that values team-based decision making and shows respect for contributions from other areas of expertise.

3.4.4. Foster accountability and leverage expertise to form a highly functioning team (one that includes the patient, family, and community) and promote shared patient-centered problem solving.

3.5 *Cultural Sensitivity (Includer): Recognize social determinants of health to diminish disparities and inequities in access to quality care.*

*Learning Outcomes*

- 3.5.1. Recognize the collective identity and norms of different cultures without overgeneralizing (i.e., recognize and avoid biases and stereotyping).
- 3.5.2. Demonstrate an attitude that is respectful of different cultures.
- 3.5.3. Assess a patient’s health literacy and modify communication strategies to meet the patient’s needs.
- 3.5.4. Safely and appropriately incorporate patients’ cultural beliefs and practices into health and wellness care plans.

3.6. *Communication (Communicator): Effectively communicate verbally and nonverbally when interacting with an individual, group, or organization.*

*Learning Outcomes*

- 3.6.1. Interview and/or counsel patients/care givers using an organized structure, specific questioning techniques (e.g., motivational interviewing), and medical terminology adapted for the audience.
- 3.6.2. Actively listen and ask appropriate open and closed-ended questions to gather information.
- 3.6.3. Use available technology and other media to assist with communication as appropriate.
- 3.6.4. Use effective interpersonal skills to establish rapport and build trusting relationships.
- 3.6.5. Communicate assertively, persuasively, confidently, and clearly.
- 3.6.6. Demonstrate empathy when interacting with others.
- 3.6.7. Deliver and obtain feedback to assess learning and promote goal setting and goal attainment.
- 3.6.8. Develop professional documents pertinent to organizational needs (e.g., monographs, policy documents).
- 3.6.9. Document patient care activities clearly, concisely, and accurately using appropriate medical terminology, standardized qualitative and quantitative methods, and/or uniform coding systems.
- 3.6.10. Participate in the examination of a practice site’s commitment, capacity, and efforts to meet the communication needs of the populations served by the practice environment.

**Domain 4 – Personal and Professional Development**

4.1. *Self-awareness (Self-aware) – Examine and reflect on personal knowledge, skills, abilities, beliefs, biases, motivation, and emotions that could enhance or limit personal and professional growth.*

*Learning Outcomes*

- 4.1.1. Use metacognition to regulate one’s own thinking and learning.
- 4.1.2. Maintain motivation, attention, and interest (e.g., habits of mind) during learning and work-related activities.
- 4.1.3. Identify, create, implement, evaluate, and modify plans for personal and professional development for the purpose of individual growth.
- 4.1.4. Approach tasks with a desire to learn.
- 4.1.5. Demonstrate persistence and flexibility in various situations; engaging in help seeking behavior when appropriate.
- 4.1.6. Strive for accuracy and precision by displaying a willingness to recognize, correct, and learn from errors.
- 4.1.7. Use constructive coping strategies to manage stress.
- 4.1.8. Seek personal, professional, or academic support to address personal limitations.
- 4.1.9. Display positive self-esteem and confidence when working with others.
- 4.1.10. Demonstrate the ability to be a self-directed lifelong learner.

4.2. *Leadership (Leader): Demonstrate responsibility for creating and achieving shared goals, regardless of position.*

*Learning Outcomes*

- 4.2.1. Identify, compare, and contrast the characteristics that reflect leadership versus management.
- 4.2.2. Identify the history (e.g., successes and challenges) of a team before implementing changes.
- 4.2.3. Develop relationships, value diverse opinions, and utilize individuals’ strengths and weaknesses to promote teamwork.
- 4.2.4. Persuasively communicate goals to the team to help build consensus.
- 4.2.5. Empower team members by actively listening, gathering input or feedback, and fostering collaboration.

4.3. *Innovation and Entrepreneurship (Innovator): Engage in innovative activities by using creative thinking to envision better ways of accomplishing professional goals.*

*Learning Outcomes*

- 4.3.1. Demonstrate initiative when confronted with challenges.
- 4.3.2. Develop new ideas and approaches to improve quality or overcome barriers to advance the profession.
- 4.3.3. Demonstrate creative decision-making when confronted with problems or challenges.
- 4.3.4. Assess personal strengths and weaknesses in entrepreneurial skills.
- 4.3.5. Apply entrepreneurial skills within a real or simulated entrepreneurial activity.
- 4.3.6. Conduct a risk-benefit analysis for implementation of an innovative idea or simulated

entrepreneurial activity.

4.4. *Professionalism (Professional): Exhibit behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers, and society.*

*Learning Outcomes*

- 4.4.1. Demonstrate altruism, integrity, trustworthiness, diligence, flexibility, patience, humility, and respect in all interactions.
- 4.4.2. Display preparation, initiative, and accountability consistent with a commitment to excellence.
- 4.4.3. Deliver patient-centered care in a manner that is legal, ethical, and compassionate and free of conflict of interest.
- 4.4.4. Demonstrate an awareness that one’s professionalism is constantly evaluated by others.
- 4.4.5. Engage in the profession of pharmacy by demonstrating a commitment to its continual improvement.
- 4.4.6. Display respect for patient privacy, confidentiality, and autonomy.

**LEARNING OUTCOMES GLOSSARY**

- **Advocacy**—The act of or process of supporting a cause, idea, policy, or person(s).
- **Clinical Sciences**—The areas of the professional pharmacy curriculum focused on the integration and application of the foundational sciences (e.g. pharmaceutical and social, administrative, and behavioral sciences) to improve the human condition through the safe and efficacious use medications.
- **Competency**—A complex set of behaviors built through the integration of knowledge, skills, and attitudes. A competency is observable, measurable, important, and necessary for the practice of pharmacy.
- **Constructive Coping Strategies**—Consciously working to solve personal and interpersonal problems and minimize or tolerate stress.
- **Culture**—Sharing a collective identity, common history and experience, and shared beliefs, values, and norms.
- **Entrepreneurial Skills**—Skills that entrepreneurs effectively exhibit such as: decision-making, strategic thinking, risk taking, confidence building, communicating ideas, motivating team members, tolerance of ambiguity, taking responsibility for actions.
- **Habits of Mind**—The dispositions that are intentionally used by characteristically successful people when confronted with problems that have no immediately apparent solutions. These dispositions include:
  - Persisting
  - Managing impulsivity
  - Listening with understanding and empathy
  - Thinking flexibly
  - Thinking about your thinking, emotions, and

- biases
- Striving for accuracy
  - Questioning with critical curiosity; problem posing
  - Applying past knowledge to new situations
  - Thinking and communicating with clarity and precision
  - Attentively gathering data through all senses
  - Creating, imagining and innovating
  - Responding with wonderment and awe
  - Taking responsible risks
  - Finding humor
  - Thinking interdependently
  - Remaining open to continuous learning
- **Health Literacy**—One of the social determinants of health referring to the degree to which an individual can obtain and process basic health information to understand and make appropriate health decisions.
  - **Help Seeking**—Assessing needs and finding assistance when a deficit is identified that is associated with academic success.
  - **Innovation**—The act or process of introducing new ideas, devices, or methods.
  - **Interprofessional**—Two or more professions working together collaboratively. Interprofessional is contrasted with the term interdisciplinary, which focuses on when two or more fields within the same profession interact.
  - **Leadership**—Leadership involves inspiring others. It is a function of knowing yourself, creating a culture of trust and open communication, having a vision that is well communicated, empowering others, taking a broad view of situations, and forming strategic alliances.
  - **Management**—Identifying, implementing, and overseeing resources to effectively accomplish specific projects or processes.
  - **Medication Use System**—A complex process comprised of medication prescribing, order processing, dispensing, administration, and effects monitoring (e.g., intended or unintended effects).
  - **Metacognition**—Knowledge about one's own thinking processes and consciously planning, monitoring, and evaluating learning.
  - **Learning Outcome**—Statements that describe what a learner should be able to do at the end of a program.
  - **Patient-centered Care**—Any care that is respectful of and responsive to individual patient preferences, needs, and values, and ensures that patient values guide all clinical decisions.
  - **Pharmaceutical Sciences**—The integrative science disciplines (e.g., pharmaceutics, pharmacokinetics, pharmacology, toxicology, and medicinal chemistry) taught in the professional pharmacy curriculum that, collectively explain drug actions. The pharmaceutical sciences build on principles introduced in the preprofessional (chemistry, physics, biology) and biomedical (anatomy,

- physiology, biochemistry) sciences.
- **Population-based Care**—A comprehensive care approach where practitioners assess the health needs of a specific population, implement and evaluate interventions to improve the health of that population, and provide care for individual patients in the context of the culture, health status, and health needs of the populations of which that patient is a member.
  - **Population Health Management**—A set of interventions designed to maintain and improve people's health across the full continuum of care—from low-risk, healthy individuals to high-risk individuals with one or more chronic conditions.
  - **Social, Behavioral, and Administrative Sciences**—The disciplines and concepts of public health, epidemiology, economics, financial management, health behavior, outcomes, biostatistics and research methods, law and ethics, healthcare administration, management, and operations, marketing, communications, medication distribution systems taught within the professional pharmacy curriculum.
  - **Social Determinants of Health**—Circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness. Examples include age, race/ethnicity, gender, socioeconomic status, health literacy, religious beliefs, disability status, diagnosis, LGBT (i.e., lesbian, gay, bisexual, transgender) status, and geography.
  - **Transitions of Care**—The movement of a patient from one setting of care (e.g., hospital, ambulatory primary care clinic, ambulatory specialty care clinic, long-term care facility, home health, rehabilitation facility) to another.

As reflected in these learning outcomes, LIU Pharmacy has defined the general educational and professional outcomes and abilities expected of today's graduates. The curriculum was designed to prepare students for an entry-level position in any aspect of the profession—e.g., community practice, hospital practice, long-term care, managed care and the pharmaceutical industry. Moreover, the curriculum prepares students to continue their education through the pursuit of a graduate degree or by participating in residency and/or fellowship programs. The development of higher-level thinking, active learning, and life-long learning skills are liberally sprinkled throughout the curriculum. Students are afforded the opportunity to register for elective didactic as well as elective experiential (selective) courses in order to help them pursue personal career paths.

The curriculum begins with a minimum of two years of studies in the liberal arts and sciences. Studies in the physical and biological sciences and mathematics in the preprofessional years prepare the student for studies in the pharmaceutical and

biomedical sciences in the professional phase of the curriculum. Studies in the humanities and social sciences provide that common and universally accepted body of knowledge all educated men and women are expected to acquire, irrespective of vocational or professional objectives. Thus, the curriculum offers students the opportunity to develop an understanding of the relationships among the arts and sciences and to apply that understanding to human concerns in their professional and personal lives.

The professional phase of the curriculum consists of studies in the pharmaceutical and biomedical sciences that are of such depth, scope, timeliness, quality, sequence and emphasis as to provide the foundation for and support of the intellectual and clinical objectives of the professional program. Most of the courses in the biomedical and pharmaceutical sciences are part of a sequence and, as such, are coordinated within a lock-step approach, i.e., students master a given topic after which additional material is presented to bring the student to a higher level. Within each discipline, the courses are vertically and horizontally integrated and coordinated to ensure that the curricular endpoints and specific course objectives are met. Studies in the behavioral, social, and administrative pharmacy sciences provide the basis for understanding and influencing human behavior in health and disease, in the management process of pharmacy, and in pharmacy's interrelationships with health-care systems. Courses in these sciences provide the knowledge, skills, abilities, attitudes, and values necessary for the efficient and effective management of patient-centered practice.

Studies in pharmacy practice develop the understanding of important disease states and rational therapeutics of these conditions. The coursework is designed to develop the abilities of students to utilize pathophysiologic, pharmacotherapeutic and pharmacoeconomic principles to formulate pharmaceutical care plans for patient management. Development of pharmaceutical care plans includes problem identification, data collection and evaluation, implementation of appropriate therapy, and monitoring patient outcomes based upon the patient's biopsychosocial needs. Additionally, studies in pharmacy practice prepare the student to effectively utilize pharmaceutical information sources and data bases that are necessary, in the course of pharmacy practice, to physically assess patients who are about to receive or are receiving medications, and to administer medications via various routes such as injection and inhalation.

The experiential education components of the professional program are of such intensity, breadth and duration as to support the achievement of the curricular endpoints. Experiential education begins virtually the first day the student enters the professional program and continues until graduation. Introductory pharmacy practice experiences are offered during the early

sequencing of the curriculum for purposes of providing transitional experiential activities and active learning. The introductory practice experience begins with a visitation program in the students' first professional semester and provides an orientation to the practice of pharmacy and the provision of pharmaceutical care in a number of environments. In the second professional year the introductory clerkship offers students the opportunity to develop pharmaceutical care plans for patients, counsel patients about prescription and nonprescription items, interact with health-care professionals, and assist in the dispensing of prescriptions. The advanced pharmacy practice experiences in the final year of the professional curriculum provide students with active participation and in-depth experiences to acquire practice skills and judgment to develop the level of confidence and responsibility needed for independent and collaborative pharmacy practice.

These experiences serve as a capstone and require students to utilize all knowledge, skills, attitudes, and behaviors previously learned. A wide range of advanced practice experiences is offered. The core experiences ensure that students have developed the competency to participate in the drug use decision making process, to select the correct medication and dosage for a given situation, to interact with health-care professionals and peers, to communicate with patients and/or care-givers, to solve issues related to the rational use of medications and document them, to utilize drug information skills to respond to queries, to assist pharmacists in dispensing commercially available as well as extemporaneously prepared medications, and to develop in-depth pharmaceutical care plans. The elective advanced practice experiences continue this process, yet allow students to fulfill individual professional needs.

### Preprofessional Phase Course of Study

The preprofessional phase of the program, offered through Richard L. Conolly College, consists of a minimum of four semesters of coursework in the liberal arts and sciences. Successful completion of two years of preprofessional study (P-1 and P-2) provides the foundation for admission to the professional pharmacy curriculum. The course sequence for the preprofessional phase is listed below. For course descriptions, please refer to the LIU Brooklyn undergraduate bulletin.

Credentials of students attending other colleges for the preprofessional phase of the program will be evaluated on an individual course basis, and transfer credit will be granted for those courses meeting the requirements of LIU Pharmacy. Only those preprofessional students who meet the progression requirements, as outlined under the heading of Admission, will be admitted to the first

professional year of study in LIU Pharmacy.

While the preprofessional phase of the program is designed to be completed in two academic years, students requiring proficiency and skills courses may have a lengthened course of study.

The preprofessional pharmacy curriculum consists of the following course of study:

#### Preprofessional Studies

(For students entering the professional-phase (third-year) of the program beginning in Fall 2015 or after)

##### (Four Semesters)

##### First Semester

General and Inorganic Chemistry (CHM 3)	4
General Biology (BIO 1)	4
English Composition (ENG 16*)	3
Introduction to Psychology (PSY 3)	3
First Year Seminar (FYS 1)	<u>1</u>
	15

##### Second Semester

General and Inorganic Chemistry (CHM 4)	4
General Biology (BIO 2)	4
Idea of the Human (Core Seminar) (COS 50)	3
Calculus I (MTH 40**)	4
Economics (ECO 1 or 2)	<u>3</u>
	18

##### Third Semester

Organic Chemistry (CHM 121)	4
Physics for Pharmacy (PHY 27)	4
English Literature (ENG 61, 62, 63 or 64****)	3
Philosophy or History (PHI 61 or HIS 1****)	3
Physiology/Anatomy I (BIO 137)	4
Pharmacy Orientation Seminar (PHM 1)	<u>0</u>
	18

##### Fourth Semester

Organic Chemistry (CHM 122)	4
Physiology/Anatomy II (BIO 138)	4
English Literature (ENG 61, 62, 63 or 64****)	3
Philosophy or History (PHI 62 or HIS 2****)	3
Microbiology (BIO 101)	<u>4</u>
	18

\* Students are admitted into English 16 by placement examination or exemption from English

13, 14.

\*\* Mathematics placement examinations are required to determine prerequisites, if any.

\*\*\* All Pharmacy students must successfully complete two courses from the English 61, 62, 63, 64 sequence.

\*\*\*\*All Pharmacy students must successfully complete both Philosophy 61 and 62 or History 1 and 2. Students may not select one course from the Philosophy sequence and one course from the History Sequence. LIU Pharmacy strongly encourages Pharmacy students to complete the Philosophy 61 and 62 sequence.

### Professional Phase Course of Study

The professional segment of the Doctor of Pharmacy program consists of six semesters of didactic and early experiential coursework and an extramural sixth year of 40 weeks of advanced pharmacy practice experiences, which students complete in hospital, community and other pharmacy practice settings. The professional program provides the specialized education necessary to develop expertise in the ever-broadening field of pharmacy and prepares the student for professional licensure examinations.

All professional courses must be taken in residence. There is no transfer credit for any professional-level course.

All students enrolled in pharmacy courses with an experiential component are required to have satisfactory yearly physical examination reports. A completed health form must be submitted to the Office of Experiential Education by the deadline dates established for each academic term. It is the responsibility of each student to visit a physician and to obtain a physical examination, specific laboratory tests and immunizations at the student's own expense. Students must show proof of quantitative positive titers for rubella, rubeola, mumps, varicella and hepatitis B; proof of vaccination and/or qualitative reports are not acceptable to practice sites for these tests. Additionally, students must show proof of a baseline hepatitis C titer which can be qualitative, laboratory report of baseline urinalysis, CBC (complete blood count), and basic metabolic panel as well as proof of having received appropriate booster doses of diphtheria and tetanus (or Tdap). Students need to obtain a meningococcal vaccination or sign a form to indicate that they are waiving this requirement. Students need to obtain a test for exposure to tuberculosis – e.g., a PPD (or Mantoux tuberculin test) or a QuantiFERON – immediately before and then every year during experiential education. If a PPD is performed, a 2-step test is required annually; other assessments during the year may be with a 1-step procedure if performed within one year of a previous test. A positive Mantoux (PPD) test will require that the student get a chest x-ray

and be assessed for the presence of tuberculosis. The decision to treat the student needs to be discussed with the individual physician. In addition, all students are to be tested for syphilis before commencing an experiential course. Students are also required to obtain an influenza vaccine each year (usually due in October).

The College reserves the right to require additional medical tests or documentation it determines are necessary for protecting the health of the student, other health-care providers and patients. Individual sites affiliated with the pharmacy program may require additional medical information from students, and may require that students submit various forms directly to the experiential site prior to beginning an experiential course.

It is the student's responsibility to fulfill these requirements in order to participate in experiential courses. Failure to submit required reports within the specified time period automatically results in a monetary fine and may deny admittance of students to pharmacy courses with experiential components. Students must prove that they are knowledgeable of the Health Insurance Portability and Accountability Act (HIPAA) as it relates to pharmacy and complete appropriate OSHA training. As such, students will complete College-approved HIPAA and OSHA training programs and might need to complete additional training at individual practice sites.

Prior to beginning introductory and advanced pharmacy practice experiences, each student needs to submit proof of being a U.S. citizen or non-citizen national, is a lawfully admitted immigrant for permanent residence, or is a temporary visitor lawfully admitted for educational study. In addition, students are required to complete an annual criminal background check, and undergo a toxicology screen to identify drug use. Many sites reserve the right to repeat background checks and drug screens prior to or during an experiential course.

In compliance with the U.S. Public Health Service requirements, it is recommended that pregnant students not enroll in Human Anatomy, Physical Assessment and Drug Administration, or other courses in which students may come into contact with tissue and/or pathogens, or to engage in experiential courses where there are patients/clients with infectious diseases, unless first receiving written permission from their physicians.

### Doctor of Pharmacy Degree Requirements (For Students Beginning the Professional Phase Fall 2015 and After)

218-219 Minimum Total Credits Required (depending on admission status; see notes for courses OS 1 and PH 1) for the Doctor of Pharmacy Degree

### Pharmacy Preprofessional Studies

#### Preprofessional Science Course Requirements

(All courses [39 credits] from the following table are required.)

BIO	1	General Biology	4.00
BIO	2	General Biology	4.00
BIO	101	Microbiology	4.00
BIO	137	Anatomy and Physiology I	4.00
BIO	138	Anatomy and Physiology II	4.00
CHM	3	General and Inorganic Chemistry	4.00
CHM	4	General and Inorganic Chemistry	4.00
CHM	121	Organic Chemistry	4.00
CHM	122	Organic Chemistry	4.00
PHY	27	Physics for Pharmacy	4.00

#### Preprofessional Mathematics Course

##### Requirements

(One course [4 credits] from the following table is required.)

MTH	40	Calculus I	4.00
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#### Preprofessional English Composition Course

##### Requirements

(Both courses [6 credits] from the following table are required.)

COS	50	Idea Of The Human	3.00
ENG	16	English Composition	3.00

#### Preprofessional English Literature Course

##### Requirements

(Two courses [6 credits] from the following table are required.)

ENG	61	European Literatures I	3.00
ENG	62	European Literatures II	3.00
ENG	63	American Literatures	3.00
ENG	64	Non-Western Literatures	3.00

#### Preprofessional Philosophy OR History Course

##### Requirements

(Two courses [6 credits] are required. Both courses must be in the same discipline.)

#### Philosophy

PHI	61	Philosophical Explorations I	3.00
PHI	62	Philosophical Explorations II	3.00

#### History

HIS	1	History of Civilizations to 1500	3.00
HIS	2	History of Civilizations Since 1500	3.00

### Preprofessional Economics Course

#### Requirement

(One course [3 credits] from the following table is required.)

ECO	1	Introduction to Economics	3.00
ECO	2	Introduction to Economics	3.00

### Preprofessional Psychology Course

#### Requirement

PSY	3	General Psychology	3.00
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### Orientation Seminar

(This is required of all incoming students entering the university with fewer than 24 credits.)

FYS	1	First Year Seminar	1.00
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### Preprofessional Pharmacy Orientation Course

#### Requirement

(This course is not required for students transferring into the first professional year of the Doctor of Pharmacy degree program.)

PHM	1	Pharmacy Orientation Seminar	0.00
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### Professional GPA

A 2.33 or above GPA is required in all professional coursework in the Doctor of Pharmacy degree program.

### Pharmacy Professional Studies Required Courses

#### 3rd Year Professional Phase

(All courses in the following table are required.)

PHM	310	Pathophysiology/Immunology	3.00
PHM	311	Pharmaceutics I	2.00
PHM	312	Pharmaceutics II	2.00
PHM	313	Biochemistry	3.00
PHM	314	Pharmacy Profession and the Health Care System	3.00
PHM	315	Pharmacy and Society	2.00
PHM	320	Molecular Biology	2.00
PHM	321	Principles of Pharmacology/Medicinal Chemistry/Toxicology	2.50
PHM	322	Introduction to Pharmacy Law and the Integrated Pharmaceutical Care Lab	1.00
PHM	323	Pharmaceutics III	3.00
PHM	324	Biostatistics	2.00
PHM	325	Introduction to Pharmacy Practice	3.00
PHM	326	Principles of Physical Assessment and Medication Administration	2.00
PHM	300	P-3 Introductory Pharmacy Practice Experience	0.50

**4th Year Professional Phase**

(All courses in the following table are required.)

PHM 410	Human Genetics	2.00
PHM 411	Modular Organ Systems Therapeutics I	3.00
PHM 412	Modular Organ Systems Therapeutics II	3.00
PHM 413	Modular Organ Systems Therapeutics III	2.50
PHM 414	Drug Information and Literature Evaluation	3.00
PHM 420	Principles of Health Behavior and Patient-provider Communication	3.00
PHM 421	Pharmaceutics IV	3.00
PHM 422	Compounding Laboratory	11.00
PHM 423	Pharmacy Practice Laboratory I	1.00
PHM 424	Modular Organ Systems Therapeutics IV	2.50
PHM 425	Modular Organ Systems Therapeutics V	3.50
PHM 400	Community Practice Introductory Pharmacy Practice Experience	4.00
PHM 401	Acute Care Introductory Pharmacy Practice Experience	1.00

**5th Year Professional Phase**

(All courses in the following table are required.)

PHM 510	Health Care Informatics	2.00
PHM 511	Pharmaceutics V	3.00
PHM 512	Compounding Laboratory II	1.00
PHM 513	Pharmacy Practice Laboratory II	1.00
PHM 514	Practical Application of Biological Sciences	1.00
PHM 515	Pharmacoeconomics and Pharmacoepidemiology	2.00
PHM 516	Modular Organ Systems Therapeutics VI	2.50
PHM 517	Modular Organ Systems Therapeutics VII	2.50
PHM 521	Practice Management	2.00
PHM 522	Public Health & Patient Safety	3.00
PHM 523	Pharmacogenomics	2.00
PHM 524	Clinical Pharmacokinetics	2.00
PHM 525	Pharmacy Law and Ethics	3.00
PHM 528	Modular Organ Systems Therapeutics VIII	3.50
PHM 529	Modular Organ Systems Therapeutics IX	3.00
PHM 500	Institutional Practice Introductory Pharmacy Practice Experience	4.00

**6th Year Professional Phase (Required**

**Advanced Pharmacy Practice Experiences)**

(All courses in the following table are required.)

PHM 610	Acute Care Advanced Pharmacy Practice Experience	5.00
PHM 611	Ambulatory Care Advanced Pharmacy Practice Experience	5.00
PHM 612	Community Practice Advanced Pharmacy Practice Experience	2.50
PHM 613	Institutional Practice Advanced Pharmacy Practice Experience	5.00
PHM 614	Internal Medicine Advanced Pharmacy Practice Experience	5.00
PHM 615	Senior Seminar	0.00

**Professional Electives**

Three courses (9 credits) of professional didactic elective courses are required.

Three courses (15 credits) of elective Advanced Pharmacy Practice Experiences are required.

**Additional Requirement**

Completion of the LIU Brooklyn computer literacy requirement.

## PROFESSIONAL COURSE DESCRIPTIONS

### For Students Beginning the Professional Phase Fall 2015 and After.

#### **PHM 300 P-3 Introductory Pharmacy Practice Experience**

The student pharmacist will be expected to "visit" a variety of off-campus locations to observe the practice of pharmacy. More specifically, the student will be assigned to spend one 4-hour afternoon period at each of the following locations: a community pharmacy, a hospital, a long-term care facility, and at a service learning exercise organized by a community pharmacist. Additional sites may be assigned as well. The student also will observe the manner in which complementary and alternative therapies are sold in locations without a pharmacist being available to assist patients. Following the site visits, each student will need to complete an assignment (which in many cases includes a reflective essay) and participate in a reflective session on campus with a facilitator.

*Credits: 0.50*

*Every Fall*

#### **PHM 310 Pathophysiology/Immunology**

This course covers the fundamental mechanisms, etiology, pathogenesis, and manifestations of common diseases seen in today's world. Students will become familiar with the predisposing factors and pathological processes that lead to disease at the molecular, cellular, organ, and whole body levels. Topics include an introduction to the immune system in health and disease, concepts of microbial pathogenesis and the responses of the host to infection; allergy and hypersensitivity; tissue graft rejection, clinical immunosuppression, the immune system vs. cancer, autoimmune diseases, and congenital and acquired immuno-deficiencies. Students are also exposed to the basic morphologic and functional changes of major disease processes in cardiovascular, respiratory, renal, digestive and endocrine, neurologic, and musculoskeletal systems. Throughout the course, students will be developing critical thinking, problem solving, and life-long learning skills needed in pharmacy practice. At the end of this course, students will be able to describe and explain the pathophysiological mechanisms of major human diseases, and apply this knowledge when learning about the pharmacotherapy of major disease states.

*Credits: 3*

*Every Fall*

#### **PHM311 Pharmaceutics I: Pharmaceutical Calculations**

This course is designed to enable students to perform calculations requisite for the study and practice of pharmacy. The course also provides a basic understanding of statistics necessary for the student's understanding of pharmaceutical and medical literature. After completing the course

students will be able to interpret prescription orders and perform all calculations necessary for the preparation of stock solutions and extemporaneous products. The course format consists of lecture and recitation. The students are also provided with problem sheets and text assignments that they must work through on their own. It is believed that diligent and persistent practice is the best way to achieve proficiency and mastery in problem solving. Recitation sessions provide the students with an opportunity to meet in small groups in order to solve more practice problems and understand the material in depth. The recitation periods allow the students to enhance their skills working with other student to solve problems while still allowing ample opportunity for individual work and development. Following completion of this course, students will be able to interpret prescription orders, and perform all calculations necessary for the compounding of prescriptions.

*Credits: 2*

*Every Fall*

#### **PHM312 Pharmaceutics II: Basic Theories in Pharmaceutics**

This course is designed to provide the students with the basic principles and application of physical chemistry in pharmacy. It provides the bases for understanding the chemical and physical phenomenon that govern the in vivo and in vitro actions of pharmaceutical products. This course serves as the foundation for the later study of pharmaceutical manufacturing, dispensing, and biopharmaceutics and pharmacokinetics. Following completion of this course, students will be able to discuss the principles of physical chemistry such as solution theory, diffusion and dissolution, rheology, and kinetics as applied to pharmaceutical systems.

*Credits: 2*

*Every Fall*

#### **PHM313 Biochemistry**

This course provides the biochemical foundation necessary for students to understand the basis of pharmacotherapeutics. Topics include the structure and function of macromolecules, membrane structure and receptor signaling, biomolecular interactions, and the mechanisms of enzyme action. This is followed by the metabolism of carbohydrates, lipids, amino acids, nutrition, nucleotides, and the control of metabolic processes. Clinical correlations are provided throughout the course, and each student will be developing critical thinking, problem solving, and life-long learning skills needed in pharmacy practice due to the use of various active learning techniques. After completing this course, the student will be able to apply the biochemical principles that are requisite to the understanding of immunology, medicinal chemistry, and pharmacotherapy.

*Credits: 3*

*Every Fall*

#### **PHM314 Pharmacy Profession and Health Care System**

Over the past few decades, pharmacy as a profession has evolved dramatically. This evolution of the pharmacist's role in healthcare has been in sync with several other changes in the health care system. This 3 credit course introduces the student to the dynamic and complex changes that have occurred in the U.S. health care system with an emphasis on the evolution of pharmacists' roles in the provision of health care products and services and pharmacy's relationships with other healthcare providers in the health care system. It will detail the role of the other healthcare professionals and various healthcare settings in which pharmacists provide care currently and may be positioned to provide in the future.

Each class session will require students to think critically and communicate in small as well as large group settings to discuss the evolving nature of the pharmacist's role and the way in which future pharmacists can make a contribution to improving a patient's quality of life and safety.

Following completion of this course, students will be able to critically evaluate and discuss orally and in writing the historical development of the pharmacy profession and how it currently fits in the healthcare system and plays an important role in improving patient safety and patients' quality of life. Students will be able to advocate the professional contributions that pharmacists make in reducing healthcare costs, improving patients' quality of life and patient safety.

*Credits: 3*

*Every Fall*

#### **PHM315 Pharmacy and Society**

Today's pharmacists practice in an increasingly competitive social, political and economic environment, with a vast array of issues affecting their ability to develop, manage, market and get reimbursed for services provided to improve patients' quality of life and patient safety. This course adopts principles from the disciplines of marketing, economics, management, sociology and pharmaceutical policy to provide students with an understanding of the societal and market context in which pharmacists services are provided. An emphasis is placed on the most common programs that pay for pharmacist-provided patient care services. Throughout the course, students will be developing their critical thinking and problem-solving skills so that they are well prepared for developing, managing, marketing and getting reimbursed for their services.

In-class active learning strategies and homework assignments will be utilized to stimulate student critical thinking, decision-making and managerial capabilities.

Following completion of this course, students will be able to describe the pharmacists provided programs and services that are economically viable and recognized by payers in the healthcare system. Students will be able to identify the societal,

political and financial challenges associated with providing quality care to patients and will be able to provide recommendations and solutions to overcome these challenges.

*Credits: 2*

*Every Fall*

**PHM320 Molecular Biology**

The biological sciences play a growing role in our understanding of disease and the manner in which they should be treated to ensure optimal outcomes for the patient. The goal of this course is to ensure that students have a broad understanding of the basic principles of gene expression, gene replication, and molecular interactions important to biological processes. Topics include mechanisms of DNA/RNA/protein synthesis and function, gene transcription and translation, gene expression and regulation, cell cycle regulation, and molecular biology of bacteria and viruses. Students are also introduced to genetic recombination, DNA biotechnology, and diagnostic molecular biology techniques utilized in the clinical laboratory.

Throughout the course, students will be developing critical thinking, problem solving, and life-long learning skills needed in pharmacy practice.

Upon completion of this course, students will be able to explain the principles behind DNA, RNA, and proteins synthesis and regulation. Students also will be able to identify the patient care implications of their newfound knowledge. Student will be able to educate other health care professionals and patients about the importance of DNA sequencing and profiling in improving patient outcomes.

*Credits: 2*

*Every Spring*

**PHM321 Principles of Pharmacology, Medicinal Chemistry and Toxicology**

This course introduces students to many of the basic principles surrounding biological science disciplines such as pharmacology, medicinal chemistry, and toxicology. Students will, for example, begin to develop competencies in such areas as pharmacokinetics, pharmacodynamics, the theory of structure activity relationships, and toxicology. The overall course goal is to have the students develop an understanding of the scientific concepts needed to understand and ultimately provide rational drug therapy for individual patients.

Topics include basic pharmacokinetic parameters and concepts, drug metabolism and drug-drug interactions; dose-response relations; toxicity of chemical and pharmacological agents. Students are also introduced to the physiologic and pathophysiologic factors involved in drug absorption, distribution, metabolism and elimination, determinants of variability in drug responses, inter- and intra-patient variability in pharmacokinetics/ pharmacodynamics, and drug interactions. By the end of the course, students will be able to use basic pharmacokinetic parameters to begin to determine appropriate doses and dosages,

and develop/assess dose-response curves to determine relative efficacies and potencies. Student will also be able to explain the rationale for the development of adverse events seen in patients based on an understanding of toxic metabolites and drug-drug interactions. Throughout the course, students will be developing critical thinking, problem solving, and life-long learning skills needed in pharmacy practice by the use of case studies, responses to questions posed by faculty members, and other active learning techniques.

*Credits: 2.50*

*Every Spring*

**PHM322 Introduction to Pharmacy Law and the Integrated Pharmaceutical Care Laboratory**

Designed to prepare students for their introductory pharmacy practice experiences, this course provides students with an introduction to the principles of and skills required for contemporary pharmacy practice. Specifically, it reviews the various components of the prescription dispensing process, including the initial patient encounter, the patient profile review, preparing and checking the dispensed medication, and counseling the patient. An emphasis will be placed on the laws and regulations that govern this process (e.g., elements required on the prescription and pharmacy label, electronic prescribing, controlled substance laws, patient counseling requirements).

Small group teaching methods are employed to inform and prepare students for the simulated pharmacy practice scenarios to be held in the Integrated Pharmaceutical Care Laboratory. Laboratory sessions will allow students to develop a structured operational approach to the technical and legal aspects of pharmacy practice by accurately accepting, processing, and checking prescriptions to meet a patient's needs, gathering pertinent patient information, and providing information to a patient about prescription medications or products available over-the-counter.

*Credits: 1*

*Every Spring*

**PHM323 Pharmaceutics III: Biopharmaceutics and Pharmacokinetics**

A number of chemical biological and physical processes govern the in vivo fate of an administered medication. In order for a medication to be therapeutically useful it must enter the circulation (generally through an absorption process), distribute to the appropriate site of action and finally be eliminated by a chemical or physical process. This course is intended to provide the student with an understanding of the factors involved in these processes and to characterize drug disposition mathematically. In doing so, this course serves to supply the student with a fundamental background in pharmacokinetic principles.

Following completion of this course, students will be able to determine the optimal dosage form for a specific situation, determine an appropriate dosage regimen, counsel patients more appropriately and

monitor patients as well. The tools and principles gained from this course will be used in the practice of pharmaceutical care.

*Credits: 3*

*Every Spring*

**PHM324 Biostatistics**

Statistics plays a vital role in almost all branches of sciences, including pharmaceutical science and clinical science. Statistical methods are commonly used for analyzing clinical results, testing their significance. In clinical research, researchers and practitioners need to compare the release time of different dosage forms, the pharmacological effects of two chemical or biological entities, the clinical performance of a new drug with a gold standard treatment, the risk of adverse effects between different racial groups, the odds of receiving generic medications between private-insured patients and Medicaid patients, etc. Statistics help researchers and decision makers to identify real effects and differences by chance. With sound knowledge of statistics, pharmacists can carry out simple statistical test and interpret clinical studies correctly. Making decisions based upon evidence requires that students can understand, explain and apply descriptive and inferential statistics used in scientific research.

After completing the course students will be able to select the appropriate statistical procedure to answer research questions and explain why they made that decision based upon the scale of their outcomes variables and research questions. They will be able to use a computer statistical package, SPSS, Statistical Package for the Social Sciences, in solving problems and interpreting output. They will be able to explain what the results of the statistical tests mean and explain their decisions.

*Credits: 2*

*Every Spring*

**PHM325 Introduction to Pharmacy Practice**

This course is designed to introduce the entry-level student to the concepts and skills that serve as the foundation for delivering patient-centered pharmacy care. As such, this course will prepare students for higher-level courses (such as the Modular Organ Systems Therapeutics Sequence and Drug Information and Literature Evaluation). The course begins with an overview of evidence-based medicine and information resources available to the practicing pharmacist. It continues with an in-depth review of laboratory tests commonly used when monitoring a patient. Students are later introduced to various diagnostic procedures and devices that may be seen in practice, components of a medical record, principles of adverse drug reactions and drug interactions, and the concepts of therapeutic drug monitoring, medication reconciliation, and documentation used in the provision of direct patient care services. The course concludes with a discussion of principles related to self-care and complementary and alternative medicine, including assessment of a patient seeking



nonprescription medications. Recitation sessions provide the students with an opportunity to meet in small groups as well as individually in order to use various active learning techniques to apply concepts discussed during lecture.

Following completion of this course students will be able to select the appropriate drug information reference to answer a specific question, extract pertinent information within a medical record and interpret the findings (e.g., laboratory test results), describe the principles of drug interactions and adverse drug reactions, prepare rudimentary pharmaceutical care plans and FARM notes, and assess whether a patient is an appropriate self-care candidate.

*Credits: 3*

*Every Spring*

### **PHM326 Principles of Physical Assessment and Medication Administration**

This course covers topics fundamental to patient care including the provision of collaborative drug therapy management, pharmacists as immunizers, and other expanded patient-care roles that pharmacists play in today's health care system. An emphasis is placed on the skills required to engage in medication therapy management services. These skills include the collection of objective data such as is required during physical assessment for therapeutic monitoring, screening for drug induced diseases, the evaluation of adverse events, and the administration of pharmaceuticals and vaccines. Laboratory sessions provide students with an opportunity to work individually and in small groups to engage in simulated performances of physical assessment and medication administration. After completing the lecture and skills laboratory components of this course the student will be able to obtain medical histories, screen patients for common medical problems such as hypertension, diabetes and a variety of oncological disorders, detect adverse drug reactions and monitor a patient's therapies through a review of systems and physical examination. Students will also become familiar with administering intramuscular and subcutaneous injections and counseling patients on the correct technique for administration of ophthalmological and otic preparations, inhaler devices, and devices for nebulization.

*Credits: 2*

*Every Spring*

### **PHM400 Community Practice Introductory Pharmacy Practice Experience**

This introductory experience course will expose the student to the patient care, administrative, distributive, and overall practice of a contemporary community pharmacy. The student pharmacist will observe and participate with pharmacists, perhaps other pharmacy students, and other health care professionals in providing direct patient care. The student will become familiar with key elements involved with dispensing prescriptions (such as interpreting a patient profile, taking an oral

prescription, preparing a product label, and counseling a patient, in order to assist the pharmacist in dispensing prescriptions. The student pharmacist also will observe/participate in assisting patients to select nonprescription agents, monitoring devices, and durable medical equipment. Finally, the student will gain experience in developing care plans for ambulatory patients.

*Credits: 4*

*Every Summer*

### **PHM401 Acute Care Introductory Pharmacy Practice Experience**

This Introductory Pharmacy Practice Experience, IPPE, will provide the student with his or her first opportunity to provide direct patient care in a hospital/medical center. Utilizing the knowledge and skills learned in the curriculum to date, the student pharmacist will observe (to a small degree) and participate with pharmacists, other student pharmacists, perhaps pharmacy residents, and other health care professionals/students in providing patient care to the extent permitted by law and the student's level of expertise. During this IPPE, the student will develop care plans, participate in clinical rounds with a medical team, and interact with patients. Direct patient care activities will include taking medication histories and/or providing patient counseling under the supervision of a pharmacist preceptor. The student will have ample opportunity to perform interventions that are meaningful and valuable to the health care team and patients while becoming familiar with the role of the hospital pharmacist. Opportunity might exist for the student to participate in a special project.

*Credits: 1*

*Every Fall and Spring*

### **PHM410 Human Genetics**

The goal of this course is to ensure that students acquire the fundamental knowledge and, to a limited extent, the skills that will be used in higher-level courses (such as the MOST series) to provide individualized pharmacotherapy for patients. Students will be able to apply various genetic and genomic tools in their patient practice. The course covers the historical developments that led to the era of genetics and genomics, and the fundamental principles of inheritance (DNA, genes, and chromosomes). Topics include the following: the human genome, mutations and polymorphisms, and mitochondrial genetics; gene interactions, multiple-factor inheritance and chromosomal inheritance; concepts and methodologies in genetic analysis. The roles of mutation, selection, and migration are investigated to determine the genetic composition of different populations, as well as discussions of simple vs. complex traits, cloning, DNA sequencing, and genetic and physical mapping. Throughout the course, students will be developing critical thinking, problem solving, and life-long learning skills needed in pharmacy practice through the use of various active learning strategies such as concept maps.

Upon completion of this course, students will be able to describe the principles of inheritance and the role of polymorphisms in human diseases, and will be able to apply the concept of genetically determined populations to most aspects of pharmacotherapeutics in order to provide patient-specific care.

*Credits: 2*

*Every Fall*

### **PHM411 Modular Organ Systems Therapeutics Sequence (MOST I)**

This is the first of a 9-course sequence combines the disciplines of pharmacology, medicinal chemistry, and pharmacotherapy in order to provide the student with an integrated approach to understanding the molecular mechanisms of drug action, the effects of medications on the body, and rational therapeutic approaches to important disease states. An emphasis is placed on the most common conditions for which pharmacists and student pharmacists are exposed to when providing patient care. In general, the students learn pharmacologic principles first and then learn rational pharmacotherapeutics. Throughout the sequence, students will be developing their critical thinking and problem-solving skills so that they are well prepared for experiential education and, eventually, pharmacy practice.

Recitation sessions provide the students with an opportunity to meet in small groups in order to use various active learning techniques such as evaluating case studies, developing concept maps, and debating a variety of issues. The recitation periods allow the students to enhance their skills working with other student health care professionals to solve complex problems while still allowing ample opportunity for individual work and development.

Following completion of these courses, students will be able to describe the chemical basis of drug metabolism, structure activity relationships, and the reasons that medications may cause adverse events in patients. Students will be able to identify the appropriate prescription or nonprescription medication to use in a specific situation, and will be able to make recommendations to other health care professionals as well as patients about these therapies. Overall, students will be able to utilize pharmacologic, pathophysiologic, and pharmacotherapeutic principles in order to formulate patient care plans and provide patient-focused care.

The first course in the sequence includes discussion of common anemias, fluid and electrolyte abnormalities, renal failure, and acid base disorders.

*Credits: 3*

*Every Fall*

### **PHM412 Modular Organ Systems Therapeutics Sequence (MOST II)**

This is the second of a 9-course sequence combines the disciplines of pharmacology, medicinal chemistry, and pharmacotherapy in order to

provide the student with an integrated approach to understanding the molecular mechanisms of drug action, the effects of medications on the body, and rational therapeutic approaches to important disease states. An emphasis is placed on the most common conditions for which pharmacists and student pharmacists are exposed to when providing patient care. In general, the students learn pharmacologic principles first and then learn rational pharmacotherapeutics. Throughout the sequence, students will be developing their critical thinking and problem-solving skills so that they are well prepared for experiential education and, eventually, pharmacy practice.

Recitation sessions provide the students with an opportunity to meet in small groups in order to use various active learning techniques such as evaluating case studies, developing concept maps, and debating a variety of issues. The recitation periods allow the students to enhance their skills working with other student health care professionals to solve complex problems while still allowing ample opportunity for individual work and development.

Following completion of these courses, students will be able to describe the chemical basis of drug metabolism, structure activity relationships, and the reasons that medications may cause adverse events in patients. Students will be able to identify the appropriate prescription or nonprescription medication to use in a specific situation, and will be able to make recommendations to other health care professionals as well as patients about these therapies. Overall, students will be able to utilize pharmacologic, pathophysiologic, and pharmacotherapeutic principles in order to formulate patient care plans and provide patient-focused care.

This course focuses on cardiovascular disorders and their rational treatment.

*Credits: 3*  
*Every Fall*

**PHM413 Modular Organ Systems Therapeutics Sequence (MOST III)**

This is the third of a 9-course sequence combines the disciplines of pharmacology, medicinal chemistry, and pharmacotherapy in order to provide the student with an integrated approach to understanding the molecular mechanisms of drug action, the effects of medications on the body, and rational therapeutic approaches to important disease states. An emphasis is placed on the most common conditions for which pharmacists and student pharmacists are exposed to when providing patient care. In general, the students learn pharmacologic principles first and then learn rational pharmacotherapeutics. Throughout the sequence, students will be developing their critical thinking and problem-solving skills so that they are well prepared for experiential education and, eventually, pharmacy practice.

Recitation sessions provide the students with an opportunity to meet in small groups in order to use

various active learning techniques such as evaluating case studies, developing concept maps, and debating a variety of issues. The recitation periods allow the students to enhance their skills working with other student health care professionals to solve complex problems while still allowing ample opportunity for individual work and development.

Following completion of these courses, students will be able to describe the chemical basis of drug metabolism, structure activity relationships, and the reasons that medications may cause adverse events in patients. Students will be able to identify the appropriate prescription or nonprescription medication to use in a specific situation, and will be able to make recommendations to other health care professionals as well as patients about these therapies. Overall, students will be able to utilize pharmacologic, pathophysiologic, and pharmacotherapeutic principles in order to formulate patient care plans and provide patient-focused care.

This course focuses on hypothalamic and pituitary disorders, diabetes mellitus, thyroid disorders, osteoporosis, and female health.

*Credits: 2.50*  
*Every Fall*

**PHM414 Drug Information and Literature Evaluation**

This course is designed to introduce students to the concepts involved in responding to drug information requests including, analysis of the question, conducting a systematic search, and formulating and communicating a response. A significant portion of the course will focus on ways to evaluate the biomedical literature with respect to trial design, methodology, statistical analysis of results, and clinical relevance of findings. The course concludes with clinical applications of drug information skills that require students to judge the merit of various types of biomedical literature so as to arrive at an evidence-based pharmacotherapy decision. The critical thinking and problem solving skills of students will be developed as they are challenged with various active-learning strategies in lecture and recitation/small-group learning sessions that focus on the application of drug information and literature evaluation skills in the delivery of patient-focused care.

After completing this course students will be able to retrieve, analyze, and interpret the professional, lay, and scientific literature to provide drug information and counseling to patients, their families or care givers, as well as other health care providers.

*Credits: 3*  
*Every Fall*

**PHM420 Principles of Health Behavior and Patient-provider Communication**

To deliver pharmaceutical care effectively, pharmacists need to understand patient behaviors and communicate with patients and other members of the health care professionals through different

modalities, e.g., verbal, written, graphic, and electronic. In order to conform to OBRA '90 (federal regulation that has implications for pharmacists), and more recent regulations regarding pharmacy practice, requiring consultation with patients in a variety of specific situations, pharmacists must also possess the ability to address (both in writing and verbally) patients, community, senior, educational and religious groups who desire medication and health information, as well as share information, ideas and solutions with other pharmacists and health professionals. This course is designed to help students achieve competencies in the areas of understanding, influencing and modifying patient behaviors, effective verbal and written communication and engaging in professional behaviors that help improve patient quality of life and patient safety. This course is also the designated Writing Intensive (WI) course and involves students writing and presenting papers on topics related to effect of patient-provider communication on patient health outcomes.

Recitation sessions provide the students with an opportunity to counsel patients while utilizing sound principles of communicating with patients in a variety of context. The recitation periods allow the students to enhance their communication and patient management skills by conducting one-on-one counseling sessions and get feedback from peers.

Following completion of this course, students will be able to effectively communicate (written and oral) and create patient care plans for improving compliance and healthy behaviors.

*Credits: 3*  
*Every Spring*

**PHM421 Pharmaceutics IV: Dosage Forms and Principles of Extemporaneous Compounding**

An important component of drug therapy is the selection of the dosage form. Some of the factors considered in the selection process include patient factors, (e.g., age, weight, gender), the route of administration, design of the dosage form, socio-economic factors, concurrent drug administration, and disease state. This course deals with the basic and applied scientific principles used in the design, preparation, storage, packaging, stability, incompatibilities, dispensing and use of polyphasic systems, including suspensions, and emulsions, of sterile parenteral, otic and nasal products and of total parenteral nutrition are necessary considerations of dosage form selection.

The laboratory component emphasizes the interpretation and dispensing of prescriptions and medication orders, and extemporaneous compounding of liquid dosage forms. Special emphasis is given to sterile product preparations including IV and TPN.

Following completion of this course, students will be able to interpret prescription orders, perform all calculations necessary for the compounding of prescriptions, and compounding the prescription.

*Credits: 3*

Every Spring

#### **PHM422 Compounding Laboratory I**

This is the first of a two-course sequence consisting of two to three hour laboratories of hands-on practice in compounding prescriptions of products not commercially available. Students will gain expertise in compounding extemporaneous dosage forms such as syrups, elixirs, emulsions, suspensions, lotions ophthalmic and nasal solutions, intravenous preparations and TPN preparations. The course also introduces the students to the concepts of home infusion therapy and gives them an opportunity to practice preparing total parenteral nutrition admixtures. The objective of the course is to provide pharmacy students with a unique opportunity to become competent in preparing extemporaneous products and to practice their chosen time-honored profession. As compounding pharmacy continues to grow, it will provide additional pharmacists with the opportunity to use their innovative skills to solve patient problems. Laboratory hours will ensure that students properly interpret prescriptions, and employ actives and excipients that are appropriate for any given dosage form. The course will allow students to become cognizant of the quality of drugs, excipients and other additives in terms of their stability, compatibility and, when necessary, sterility. Students will be fully exposed and competent in the compounding techniques commensurate to the complexities of 21st century compounding.

*Credits: 1*

*Every Spring*

#### **PHM423 Pharmacy Practice Laboratory I**

This is the first of a two-part laboratory sequence that will provide students with the opportunity to apply information and skills learned in prior coursework in a simulated patient-oriented pharmacy practice setting. Students will gain ample practice in the prescription dispensing process, such as accepting a prescription, reviewing it along with the patient profile for potential medication errors, processing the prescription, preparing/compounding the medication, checking the final product, and ultimately counseling the patient. Additionally, students will practice other activities that occur on a day-to-day basis in a typical pharmacy, such as communicating with health-care professionals to resolve issues, performing basic patient assessment, counseling patients on over-the-counter products and durable medical equipment, and managing inventory and staff.

*Credits: 1*

*Every Spring*

#### **PHM424 Modular Organ Systems Therapeutics Sequence (MOST IV)**

This is the fourth of a 9-course sequence combines the disciplines of pharmacology, medicinal chemistry, and pharmacotherapy in order to provide the student with an integrated approach to

understanding the molecular mechanisms of drug action, the effects of medications on the body, and rational therapeutic approaches to important disease states. An emphasis is placed on the most common conditions for which pharmacists and student pharmacists are exposed to when providing patient care. In general, the students learn pharmacologic principles first and then learn rational pharmacotherapeutics. Throughout the sequence, students will be developing their critical thinking and problem-solving skills so that they are well prepared for experiential education and, eventually, pharmacy practice.

Recitation sessions provide the students with an opportunity to meet in small groups in order to use various active learning techniques such as evaluating case studies, developing concept maps, and debating a variety of issues. The recitation periods allow the students to enhance their skills working with other student health care professionals to solve complex problems while still allowing ample opportunity for individual work and development.

Following completion of these courses, students will be able to describe the chemical basis of drug metabolism, structure activity relationships, and the reasons that medications may cause adverse events in patients. Students will be able to identify the appropriate prescription or nonprescription medication to use in a specific situation, and will be able to make recommendations to other health care professionals as well as patients about these therapies. Overall, students will be able to utilize pharmacologic, pathophysiologic, and pharmacotherapeutic principles in order to formulate patient care plans and provide patient-focused care.

This course focuses on gastrointestinal disorders, cough/cold/allergy, asthma and chronic obstructive pulmonary disease, and behavioral aspects of smoking cessation.

*Credits: 2.50*

*Every Spring*

#### **PHM425 Modular Organ Systems Therapeutics Sequence (MOST V)**

This is the fifth of a 9-course sequence combines the disciplines of pharmacology, medicinal chemistry, and pharmacotherapy in order to provide the student with an integrated approach to understanding the molecular mechanisms of drug action, the effects of medications on the body, and rational therapeutic approaches to important disease states. An emphasis is placed on the most common conditions for which pharmacists and student pharmacists are exposed to when providing patient care. In general, the students learn pharmacologic principles first and then learn rational pharmacotherapeutics. Throughout the sequence, students will be developing their critical thinking and problem-solving skills so that they are well prepared for experiential education and, eventually, pharmacy practice.

Recitation sessions provide the students with an

opportunity to meet in small groups in order to use various active learning techniques such as evaluating case studies, developing concept maps, and debating a variety of issues. The recitation periods allow the students to enhance their skills working with other student health care professionals to solve complex problems while still allowing ample opportunity for individual work and development.

Following completion of these courses, students will be able to describe the chemical basis of drug metabolism, structure activity relationships, and the reasons that medications may cause adverse events in patients. Students will be able to identify the appropriate prescription or nonprescription medication to use in a specific situation, and will be able to make recommendations to other health care professionals as well as patients about these therapies. Overall, students will be able to utilize pharmacologic, pathophysiologic, and pharmacotherapeutic principles in order to formulate patient care plans and provide patient-focused care.

This course focuses on sleeping disorders, seizure disorders, alcohol and drug abuse, psychiatric disorders, Alzheimer's disease, and Parkinson's Disease.

*Credits: 3.50*

*Every Spring*

#### **PHM500 Institutional Practice Introductory Pharmacy Practice Experience**

This Introductory Pharmacy Practice Experience, IPPE, will provide the student with his or her first opportunity to practice pharmacy in a hospital/medical center setting. Utilizing the knowledge and skills obtained in the didactic and laboratory setting at the college, the student pharmacist will participate in the drug distribution aspects of a contemporary institution and may be given the opportunity to participate in administrative projects pertaining to managing a hospital pharmacy. Specifically, the student will participate in the unit dose distribution system (using manual and/or a robotic system), prepare intravenous admixtures, respond to queries posed by health care professionals, utilize the patient profile and other computerized systems in the hospital/medical center, perform interventions, and become familiar with policies and procedures unique to hospital practice. The student may have an opportunity to attend hospital or department meetings, and get involved in hospital projects such as nursing unit inspections and medication utilization reviews.

*Credits: 4*

*Every Summer*

#### **PHM510 Health Care Informatics**

Informatics is commonly defined as the use of computers to manage data and information. Medical informatics, also known as health informatics, is a more specific application of these tools and techniques toward endeavors related to

the infrastructure, development and delivery of optimal healthcare. Pharmacy informatics is the nexus between improving the medication use process through informatics, and this topic has taken on unprecedented importance in today's contemporary pharmacy practice. Taken together, we come up with the term health care informatics. Thus it is important that pharmacy students possess and conceptualize within the framework of the medication use process the knowledge and skills of healthcare informatics.

This course will provide a primer on the use of automation systems (e.g., electronic health records, robotics) that support the medication use process. Students will gain an understanding of how biomedical data are acquired, stored and used, as well as the ethical considerations that accompany this process. An emphasis will be placed on the role of informatics in assisting clinicians in assuring, through decision support technologies, optimal medication use and quality.

Students will develop their critical thinking and problem solving skills as they engage in active learning exercises designed to prepare them for developing, evaluating, using, and maintaining health care information systems.

*Credits: 2*  
*Every Fall*

**PHM511 Pharmaceutics V: Dosage Forms and Principles of Extemporaneous Compounding**

An important component of drug therapy is the selection of the dosage form. Some of the factors considered in the selection process include patient factors, (e.g., age, weight, gender), the route of administration, the design of the dosage form, socio-economic factors, concurrent drug administration, and the disease state. The course deals with the basic and applied scientific principles used in the design, preparation, storage, packaging, stability, incompatibilities, dispensing and use of polyphasic systems, including dermal and transdermal products, powders and granules, capsules, tablets, suppositories, metered dose aerosols, dry powder inhalers, nebulizers, rate-controlled and targeted drug delivery systems, and biotechnology and new drug delivery systems are necessary considerations of dosage form selection. The laboratory component emphasizes the interpretation and dispensing of prescriptions and medication orders, and extemporaneous compounding of semi solid and solid dosage forms. Special emphasis is given to sterile product preparations including IV and TPN.

Following completion of this course, students will be able to interpret prescription orders, perform all calculations necessary for the compounding of prescriptions, and compounding the prescription.

*Credits: 3*  
*Every Fall*

**PHM512 Compounding Laboratory II**

This is the second of a two-course sequence consisting of two to three hour laboratories of hands-on practice in compounding prescriptions of products not commercially available. Students will gain expertise in compounding extemporaneous dosage forms such as syrups, elixirs, emulsions, suspensions, lotions ophthalmic and nasal solutions, intravenous preparations and TPN preparations. The course also introduces the students to the concepts of home infusion therapy and gives them an opportunity to practice preparing total parenteral nutrition admixtures. The objective of the course is to provide pharmacy students with a unique opportunity to become competent in preparing extemporaneous products and to practice their chosen time-honored profession. As compounding pharmacy continues to grow, it will provide additional pharmacists with the opportunity to use their innovative skills to solve patient problems. Laboratory hours will ensure that students properly interpret prescriptions, and employ actives and excipients that are appropriate for any given dosage form. The course will allow students to become cognizant of the quality of drugs, excipients and other additives in terms of their stability, compatibility and, when necessary, sterility. Students will be fully exposed and competent in the compounding techniques commensurate to the complexities of 21st century compounding.

*Credits: 1*  
*Every Fall*

**PHM 513 Pharmacy Practice Laboratory II**

This two-part laboratory sequence will provide students with the opportunity to apply information and skills learned in prior coursework in a simulated patient-oriented pharmacy practice setting. Students will gain ample practice in the prescription dispensing process, such as accepting a prescription, reviewing it along with the patient profile for potential medication errors, processing the prescription, preparing/compounding the medication, checking the final product, and ultimately counseling the patient.

*Credits: 1*  
*Every Fall*

**PHM514 Practical Applications of the Biological Sciences**

The biological sciences recitation combines the disciplines of pathophysiology, biochemistry, molecular biology, genetics, and the principles of medicinal chemistry/pharmacology/toxicology to provide students with an integrated approach to understanding the physiological, biochemical, and molecular mechanisms of disease and inheritance, as well as the therapeutic and toxic effects of medications on the human body. By working in teams and individually, students will utilize a variety of active learning strategies such as evaluating case studies, developing concept maps, and debating a

variety of issues to solve complex problems, hone their skills and enhance their critical thinking, problem solving, and life-long learning skills. Following completion of these recitations, students will be able to apply knowledge acquired in the basic sciences to direct patient care.

*Credits: 1*  
*Every Fall*

**PHM515 Pharmacoeconomics and Pharmacoepidemiology**

In the past decade, pharmacists have come to be known as the medication experts of the health care system. Pharmacoepidemiology and pharmacoeconomics are research fields that address the effects of medication use in populations. Naturally, it is expected that pharmacists have the requisite knowledge of the principles of pharmacoepidemiology and pharmacoeconomics. This course is designed to teach students about the different study designs and ratios used in different pharmacoepidemiology studies, confounders and biases affecting these studies and their results and how to conduct high-quality epidemiologic research that directly addresses both methodological and substantive questions. Students will also gain an understanding and expertise in utilizing various pharmacoeconomic formulas and ratios to make decisions about which drugs to be included in the formulary. Active learning strategies will be utilized. Following completion of this course, students will be able to critically evaluate pharmacoepidemiological and pharmacoeconomic studies and make decisions about adapting the results of these studies in their practice. Students will be able to calculate ratios utilized in pharmacoepidemiological and pharmacoeconomic studies and provide recommendations related to medication use in populations.

*Credits: 2*  
*Every Fall*

**PHM516 Modular Organ Systems Therapeutics Sequence (MOST VI)**

This is the sixth of a 9-course sequence combines the disciplines of pharmacology, medicinal chemistry, and pharmacotherapy in order to provide the student with an integrated approach to understanding the molecular mechanisms of drug action, the effects of medications on the body, and rational therapeutic approaches to important disease states. An emphasis is placed on the most common conditions for which pharmacists and student pharmacists are exposed to when providing patient care. In general, the students learn pharmacologic principles first and then learn rational pharmacotherapeutics. Throughout the sequence, students will be developing their critical thinking and problem-solving skills so that they are well prepared for experiential education and, eventually, pharmacy practice.

Recitation sessions provide the students with an opportunity to meet in small groups in order to use various active learning techniques such as

evaluating case studies, developing concept maps, and debating a variety of issues. The recitation periods allow the students to enhance their skills working with other student health care professionals to solve complex problems while still allowing ample opportunity for individual work and development.

Following completion of these courses, students will be able to describe the chemical basis of drug metabolism, structure activity relationships, and the reasons that medications may cause adverse events in patients. Students will be able to identify the appropriate prescription or nonprescription medication to use in a specific situation, and will be able to make recommendations to other health care professionals as well as patients about these therapies. Overall, students will be able to utilize pharmacologic, pathophysiologic, and pharmacotherapeutic principles in order to formulate patient care plans and provide patient-focused care.

This course focuses on infectious diseases.

*Credits: 2.50*

*Every Fall*

#### **PHM 517 Modular Organ Systems Therapeutics Sequence (MOST VII)**

This is the seventh of a 9-course sequence combines the disciplines of pharmacology, medicinal chemistry, and pharmacotherapy in order to provide the student with an integrated approach to understanding the molecular mechanisms of drug action, the effects of medications on the body, and rational therapeutic approaches to important disease states. An emphasis is placed on the most common conditions for which pharmacists and student pharmacists are exposed to when providing patient care. Recitation sessions provide the students with an opportunity to meet in small groups in order to use various active learning techniques such as evaluating case studies, developing concept maps, and debating a variety of issues. The recitation periods allow the students to enhance their skills working with other student health care professionals to solve complex problems while still allowing ample opportunity for individual work and development. Following completion of these courses, students will be able to describe the chemical basis of drug metabolism, structure activity relationships, and the reasons that medications may cause adverse events in patients. Students will be able to identify the appropriate prescription or nonprescription medication to use in a specific situation, and will be able to make recommendations to other health care professionals as well as patients about these therapies. Overall, students will be able to utilize pharmacologic, pathophysiologic, and pharmacotherapeutic principles in order to formulate patient care plans and provide patient-focused care.

*Credits: 2.50*

*Every Fall*

#### **PHM521 Practice Management**

The healthcare system in the United States is changing rapidly. Pharmacists and their role in the healthcare system are at the epicenter of this change. Thus, it is imperative that future pharmacists learn how to handle the change in this rapidly evolving healthcare system. This course will help students acquire knowledge and skills required to excel in the areas of entrepreneurship, resource management, and business operations pertaining to pharmacy practice and change management. Principles from the managerial sciences such as business management, human resource management etc., will be applied to pharmacy business operations and patient care services. Emphasis is placed on the use of active learning strategies rather than passive listening and will require students to write mission and vision statements, create business plans, conduct SWOT Analysis, develop staffing plans and tools and analyze financial reports.

At the end of the course, students will be able to develop plans for financially sound patient care services, identify staffing requirements and apply human resource management tools to resolve issues, and conduct an in-depth analysis of the financial viability of a pharmacy business.

*Credits: 2*

*Every Spring*

#### **PHM522 Public Health and Patient Safety**

Increasingly, members of the health professions, health policymakers and the American public appreciate the importance of disease prevention and improvement of population health. The release of the document, Healthy People 2010 and national events such as the September 11 attack and the hurricane Katrina disaster have brought to public attention the need for a network of different health care professionals who can effectively respond to public health threats and improve population health. Pharmacists are one of the most accessible health care professionals to the public and therefore, can significantly affect population health. Therefore, in addition to their conventional role of delivering optimal pharmacotherapy to individual patients, it is important for pharmacists to develop skills to become effective public health providers and improve population health.

The role of the pharmacist in public health is to be able to assess the health needs of populations and to 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. At the completion of this course, students will be able to design and evaluate initiatives to promote public health such as: (1) improve access to health care and reduce health disparities, (2) increase the quality of community based programs, (3) use communication strategies to improve health, (4) ensure the safe and effective use of medical products, (5) promote health and

reduce chronic disease associated with diet and weight, (6) improve health, fitness and quality of life through promoting daily physical activity, (7) reduce substance abuse, and (8) reduce illness, disability and death related to tobacco use and exposure to secondhand smoke. Additionally, students will be trained in improving patient safety using a systems perspective. Students will be introduced to error reporting systems and techniques to identify, categorize and reduce medication errors.

The course includes lectures as well as recitation sessions. During the recitation, students will work on designing, implementing and evaluating a community based public health program.

*Credits: 3*

*Every Semester*

#### **PHM523 Pharmacogenomics**

This course exposes students to the genetic basis of diseases as related to mechanisms of action/toxicities, and inter-individual differences in response to medications and drugs. The focus is on personalized medicine and is based on molecular markers of diseases, medication effectiveness, and adverse events. An emphasis is placed on the most important genetic and genomic technologies involved in genotyping drug metabolizing enzymes, transporters, and other targets. Students are given opportunities to review and discuss current case studies of pharmacogenomics and individual variations in response to medications and drugs.

The course ends with a discussion of ethical issues involving genetic testing, patient stratification and clinical trials, and the role of the FDA in pharmacogenomics and personalized medicine. The course consists of lectures and student-led case discussions. Throughout the course, students will be developing critical thinking, problem solving, and life-long learning skills needed in pharmacy practice.

Upon completion of this course, students will be able to describe the major genetic determinants involved in human diseases and their relation to variations in response to medications/drugs. Students also will be able to apply the concept of genetically determined populations to most aspects of pharmacotherapeutics, and will have the knowledge to educate other health care professionals and patients about the availability and importance of genetic testing in order to provide personalized patient care.

*Credits: 2*

*Every Spring*

#### **PHM524 Clinical Pharmacokinetics**

Clinical pharmacokinetics is the process of using drug concentrations, pharmacokinetic principles, and pharmacodynamics criteria to personalize drug therapy. Class time includes traditional lectures coupled with active learning exercises (e.g. case studies).

Following the completion of this course, students will be able to describe the way in which the

pharmacokinetics of certain medications may be altered in specific patient populations (e.g., geriatrics, patients with renal or hepatic impairment). Students will also be able to describe the pharmacokinetics of specific medications (e.g., antiepileptics) their usual therapeutic concentration range, the relationships between concentration and pharmacodynamics effects, and factors affecting these relationships. Using knowledge regarding the pharmacokinetic characteristics of each medication, students will be able to individualize therapy for a given patient.

*Credits: 2*

*Every Spring*

#### **PHM525 Pharmacy Law and Ethics**

Like all professionals, pharmacists can be held legally accountable for the consequences of their personal conduct while providing care to their patients. This course is designed to provide students with an insight into the legal aspects of their practice. Students will be introduced to federal and state laws, statutes and professional ethics chartered by pharmacy professional associations. The course will cover both federal and state laws that impact and regulate the practice of pharmacy. Topics including the federal regulation of medications, regulation of controlled substances, and federal and state regulation of pharmacy practice will be discussed using case studies. Detailed evaluation of the New York State laws and the relevant federal regulations pertaining to pharmacy may help the students in preparing for their Multistate Pharmacy Jurisprudence Exam (MPJE), and in understanding the diverse legal issues impacting future professional practice. Using an active learning strategy, students will be asked to critically think and provide rational and moral arguments on issues that pose legal, ethical and moral challenges.

Following completion of this course, students will be able to distinguish between moral, ethical and legal behaviors, construct arguments on issues pertaining to legal and ethical conduct in pharmacy practice, and demonstrate a working knowledge of laws under which pharmacists and pharmacies operate.

*Credits: 3*

*Every Spring*

#### **PHM 528 Modular Organ Systems Therapeutics Sequence (MOST VIII)**

This is the eighth of a 9-course sequence combines the disciplines of pharmacology, medicinal chemistry, and pharmacotherapy in order to provide the student with an integrated approach to understanding the molecular mechanisms of drug action, the effects of medications on the body, and rational therapeutic approaches to important disease states. An emphasis is placed on the most common conditions for which pharmacists and student pharmacists are exposed to when providing patient care. Recitation sessions provide the students with an opportunity to meet in small

groups in order to use various active learning techniques such as evaluating case studies, developing concept maps, and debating a variety of issues. The recitation periods allow the students to enhance their skills working with other student health care professionals to solve complex problems while still allowing ample opportunity for individual work and development. Following completion of these courses, students will be able to describe the chemical basis of drug metabolism, structure activity relationships, and the reasons that medications may cause adverse events in patients. Students will be able to identify the appropriate prescription or nonprescription medication to use in a specific situation, and will be able to make recommendations to other health care professionals as well as patients about these therapies. Overall, students will be able to utilize pharmacologic, pathophysiologic, and pharmacotherapeutic principles in order to formulate patient care plans and provide patient-focused care.

*Credits: 3.50*

*Every Spring*

#### **PHM529 Modular Organ Systems Therapeutics Sequence (MOST IX)**

This is the ninth of a 9-course sequence combines the disciplines of pharmacology, medicinal chemistry, and pharmacotherapy in order to provide the student with an integrated approach to understanding the molecular mechanisms of drug action, the effects of medications on the body, and rational therapeutic approaches to important disease states. An emphasis is placed on the most common conditions for which pharmacists and student pharmacists are exposed to when providing patient care. In general, the students learn pharmacologic principles first and then learn rational pharmacotherapeutics. Throughout the sequence, students will be developing their critical thinking and problem-solving skills so that they are well prepared for experiential education and, eventually, pharmacy practice.

Recitation sessions provide the students with an opportunity to meet in small groups in order to use various active learning techniques such as evaluating case studies, developing concept maps, and debating a variety of issues. The recitation periods allow the students to enhance their skills working with other student health care professionals to solve complex problems while still allowing ample opportunity for individual work and development.

Following completion of these courses, students will be able to describe the chemical basis of drug metabolism, structure activity relationships, and the reasons that medications may cause adverse events in patients. Students will be able to identify the appropriate prescription or nonprescription medication to use in a specific situation, and will be able to make recommendations to other health care professionals as well as patients about these therapies. Overall, students will be able to utilize pharmacologic, pathophysiologic, and

pharmacotherapeutic principles in order to formulate patient care plans and provide patient-focused care.

The final course in the MOST series, a potpourri of topics are covered such as glaucoma, an introduction to geriatrics, veterinary medicine, enteral and parenteral nutrition, and managing the patient with hypovolemic and septic shock.

*Credits: 3*

*Every Spring*

#### **PHM 610 Acute Care Advanced Pharmacy Practice Experience**

This Advanced Pharmacy Practice Experience may take place on any service in a hospital or medical center – including internal medicine, emergency medicine, pediatrics, infectious diseases, and critical care. Students participate in interdisciplinary team rounds and are responsible for developing patient-specific care plans, meeting the drug information needs of the other members of the team, and interacting with patients.

*Credits: 5*

*Every Fall, Spring and Summer*

#### **PHM 611 Ambulatory Care Advanced Pharmacy Practice Experience**

Students practice alongside prescribers and other health care professionals to provide direct patient care in an ambulatory environment – usually a hospital clinic. Students participate in the decision-making process at the point that a medication is selected and are then charged with implementing practices that will enhance adherence to the agreed-upon regimen. Communicating with patients is emphasized in this experience.

*Credits: 5*

*Every Fall, Spring and Summer*

#### **PHM 612 Community Practice Advanced Pharmacy Practice Experience**

Students are asked to provide direct patient care in a community pharmacy setting. Students are expected to dispense medications under the supervision of a pharmacist and to intervene with prescribers when the situation arises. Students also become competent in recommending nonprescription and alternative therapies, and spend considerable time counseling patients. Students are involved with key administrative duties such as maintaining records and interacting with pharmacists and support personnel.

*Credits: 5*

*Every Fall, Spring and Summer*

#### **PHM 613 Institutional Practice Advanced Pharmacy Practice Experience**

Students are exposed to all elements of a modern hospital medication distribution system, and the policies, procedures, and committee structure required in an institutional setting. Students are expected to be involved with various institutional committees and participate in administrative assignments. Students provide patient-specific interventions and hone their skills in

communicating with other health care professionals including nurses and physicians.

*Credits: 5*

*Every Fall, Spring and Summer*

**PHM 614 Internal Medicine Advanced Pharmacy Practice Experience**

This Advanced Pharmacy Practice Experience takes place in a hospital or medical center. During this experience, student pharmacists participate on interdisciplinary medical rounds and contribute to the provision of patient care. Students are expected to enhance their critical thinking and problem-solving skills by resolving drug-related problems and by selecting the most appropriate therapy for a given patient care situation. Students also develop care plans, prepare notes suitable for inclusion in a medical record, provide drug information to other members of the health care team, and counsel patients.

*Credits: 5*

*Every Fall, Spring and Summer*

**PHM 615 Senior Seminar**

Attendance at live convocations and participation in distance learning throughout the academic year is required. Subject matter is topical and timely.

*Credits: 0*

*Every Fall, Spring and Summer*

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## ADMISSION

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Admission to the LIU Pharmacy program is offered to men and women of scientific aptitude whose prior academic performance indicates that they are capable of successfully completing a challenging profession-oriented curriculum.

Admission to the preprofessional program (P-1, P-2) does not constitute acceptance to the professional program (P-3). Acceptance to the professional phase of the program is competitive. Qualified candidates from the preprofessional phase who start as first-year students, who have a minimum cumulative 3.00 GPA overall and in the required math and science courses, and who complete all preprofessional courses no later than the end of the spring semester for the next fall semester professional class will receive a preference for consideration of admission into the professional program. The preference is expressed as a weighting factor that is part of the analysis done of the other components of the admission selection process.

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### Application Preprofessional Phase (P-1 and P-2) of the Programs

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Applicants for P-1 or P-2 should refer to the LIU Brooklyn Undergraduate Bulletin (<http://www.liu.edu/Brooklyn/Academics/Bulletin>) and/or the Office of Admissions ([www.liu.edu/brooklyn/admissions](http://www.liu.edu/brooklyn/admissions)) for complete details regarding admission to the university; guidelines for completing and submitting an application as well as supporting credentials; notification of admission decision; new student enrollment; and policies related to enrollment and admission procedures.

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### Arthur O. Eve Higher Education Opportunity Program (HEOP)

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**Kamel Boukerrou, Director**  
718-488-1032

The Arthur O. Eve Higher Education Opportunity Program (HEOP) grants are available for entering first-year students and a limited number of transfer students from other HEOP, EOP, College Discovery and SEEK programs. The Arthur O. Eve Higher Education Opportunity Program is a New York state funded five-year program of study, specially designed for students who are educationally and economically "disadvantaged."

Supportive services, including a six-week long pre-freshman summer program; peer mentoring; tutorials, academic, financial, personal and career counseling; and a program of developmental courses (for those identified as needing such a program) are available for Arthur O. Eve HEOP

students. The program's office is located in room 410 of the Pratt Building.

The Arthur O. Eve HEOP grants are renewable for succeeding years depending on continued announcements of awards from the New York State Education Department to LIU. In addition, the student must maintain a satisfactory academic average, remain in a full-time regular degree-seeking classification, and demonstrate continued progress toward a degree.

In order to be eligible for benefits under Arthur O. Eve HEOP, a student must

1. Be both economically and educationally "disadvantaged" according to the New York State Education Department guidelines;
2. Be a graduate of a high school approved and accredited by the New York State Education Department or have a New York State Equivalency Diploma or an Armed forces Equivalency Diploma;
3. Have potential for the successful completion of a postsecondary program;
4. Be a resident of New York state for 12 months before the date of application, and
5. Apply to the Tuition Assistance Program and Pell Grant Program.

Students enrolled at LIU Brooklyn in the Arthur O. Eve Higher Education Opportunity Program are admitted under fully matriculated status.

For further information, write Director, The Arthur O. Eve Higher Education Opportunity Program, Room P-410, LIU Brooklyn, 1 University Plaza, Brooklyn, NY 11201-5372.

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### Application Process and Deadlines for the Professional Phase (P-3) of the Program

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Admission into the professional phase of the program is highly competitive. While objective measures of academic achievement and potential GPA; score on Pharmacy College Admissions Test (PCAT); course load, selection and successful completion rate are heavily considered factors for, they are not the sole criteria. In addition to academic competence other factors are among the selection criteria that may be considered by the college such as:

- written and verbal communication skills
  - community service and extracurricular activities
  - demonstration of leadership
  - understanding of the profession of pharmacy and motivation for entering the profession
  - work experience
  - letters of recommendation particularly those from alumni of the college and other individuals known to the college
- factors of diversity including, but not limited to, academic and professional background, geography, educational or economical disadvantage, culture and multilingual ability

To receive first consideration, applicants must be currently enrolled in the preprofessional phase of the Doctor of Pharmacy program, must have achieved a minimum GPA of 3.00 in all attempted college work; a minimum GPA of 3.00 in all attempted and required science courses (specifically Biology 1, 2, 101, 137 and 138, Physics 27, Chemistry 3, 4, 121 and 122) and a minimum GPA of 3.00 in all attempted and required math courses. Preference is also given to those applicants who satisfactorily complete all P-1 and P-2 course requirements by the end of the spring semester for the following fall. An application for admission into the professional phase of the program must be submitted to the college through PharmCAS by the specified deadline date. Students should consult the PharmCAS website to determine the appropriate deadline date. The Pharmacy College Admissions Test (PCAT) is required for admission. An official PCAT score report should be submitted to PharmCAS. A personal interview is required. Not all applicants will be afforded the opportunity for a personal interview. Applicants selected for an interview will be from among those in the application pool demonstrating the highest academic achievement and potential. Additional requirements for admission into the professional phase include ability to meet the technical standards, a criminal back check, and a drug screen.

Students who are accepted and enroll as first-year student pharmacy majors in the preprofessional phase of the program receive a preference for consideration of admission into the professional phase of the program provided they complete the prescribed pre-professional program by the conclusion of the spring semester of their second year of study. A varying percentage of available seats in each professional class are set aside for such students depending upon the overall number and overall level of demonstrated academic performance of eligible students with institutional preference in any given year. The remaining number of seats is open to all applicants for the professional phase. Acceptance into the professional phase of the program is not guaranteed for students receiving institutional preference since the ultimate selection is determined through the application of the criteria discussed in the preceding paragraphs. Due to the highly competitive nature of the program not all students meeting the basic academic requirements of the program will be selected for acceptance into the professional phase.

Students for the professional phase of the program (P-3) may enter only in the fall semester. Application to the professional phase for external transfer as well as current LIU students is done through the Pharmacy College Admission Service (PharmCAS). The deadline for application to the program is also posted on the college's School Page on the PharmCAS website: ([www.pharmcas.org](http://www.pharmcas.org)).



Pharmacy (year 3) PharmCAS deadline:

**March 1, 2016**

*Note: Deadline dates are subject to change based on administrative calendar changes. Please consult the admissions website at: [www.liu.edu/brooklyn/admissions](http://www.liu.edu/brooklyn/admissions) for more information related to the term of intended application.*

## Technical Standards for Admission and Program Continuation

The mission of the Arnold & Marie Schwartz College of Pharmacy and Health Sciences is to prepare students to enter the practice of pharmacy. The following technical standards describe the non-academic qualifications, required in addition to academic performance, that the college considers essential for admission to, and continuance in, the Doctor of Pharmacy (Pharm.D.) program. A candidate for the Pharm.D. degree must possess the skills and abilities of the types listed below. The standards are in place to ensure your success in the program but also to protect the safety of the patients you will manage. Depending on the circumstances, reasonable accommodations for disabilities may be possible and made available, however candidates and continuing students are ultimately responsible for performing in a reasonably independent manner.

The college has established these technical standards in the context of the following interests: 1) the rights of applicants and students; 2) the safety of students and patients; and 3) the significant experiential education requirements of the curriculum. These interests and the nature of the educational activities in the Pharm.D. program may prevent some prospective students with disabilities from qualifying for admission and continuing students with disabilities from continuation in the program.

The technical standards described in this document are those that allow an individual to perform at the minimal acceptable level in the identified activity. Applicants and students must be able to satisfy, with or without the use of appropriate auxiliary aids (including prosthetic devices), the following technical standards which relate to physical, cognitive, and behavioral abilities relevant to successful completion of the Pharm.D. program.

- **Observational** – Through the use of visual, auditory, and somatic senses, students must be able to observe lectures, demonstrations, and experiments, read information from a computer screen, and observe a patient at a distance and close-at-hand to accurately assess a patient's physical condition, obtain a patient history, and perform physical assessments.
- **Communications** – Students should be able to

speak, hear, and observe patients in order to elicit information and perceive nonverbal communication such as facial expressions, affects, and body language. Communication skills include the appropriate use of spoken and written English.

- **Behavioral and Social Attributes** – Students should demonstrate maturity, integrity, compassion and respect for others. The student must possess the emotional and mental health required for full use of their intellectual abilities.
- **Motor** – The student must have sufficient motor skills necessary to prepare all routine forms of medication orders including compounding, administering, and dispensing; and be able to elicit patient information through the use of physical assessment techniques.
- **Intellectual, Conceptual, Integrative and Quantitative Ability** – Students must have effective and efficient learning skills to master an entry-level doctorate program. They must be able to learn through a variety of teaching methods (e.g. classroom instruction, small group activities, individual study, experiential activities, and self-learning. Students must be able to read, comprehend, analyze, and interpret data in order to respond to information related to medical situations in an organized manner. Intellectual abilities must be sufficient enough to analyze and synthesize information from a large variety of sources.

The college does not discriminate against qualified disabled individuals and works with the university's campus-based Office of Student Support Services to support qualified students with documented disabilities in fully participating in all college programs and activities. Methods toward achieving success and/or equal opportunities include academic adjustments, auxiliary aids and services, and other reasonable accommodations that may be provided to individuals to remove or lessen the effects of disability-related barriers. Examples of auxiliary aids and services include providing sign language interpreters or other assistive technology.

The applicant should evaluate him/herself for compliance with these technical standards. Submission of an affidavit will serve as testimony the student has read and understands these standards and acknowledges compliance with them.

## Transfer from Other Colleges of Pharmacy

Students seeking transfer from colleges of pharmacy accredited by the Accreditation Council for Pharmacy Education (ACPE) must provide, in addition to official transcripts of all academic work, a statement of their reasons for seeking transfer and a letter of evaluation from the dean of their present college of pharmacy.

## Students Presenting Foreign Credentials

International applicants must submit all academic credentials, including a record of secondary school grades for the final three years, and results of any examination rendering a student eligible for university matriculation in his or her own country. Students are expected to have demonstrated adequate preparation in mathematics and English. All documents submitted must be translated into English and notarized.

All applicants are required to present their results on the Scholastic Aptitude Test (SAT). The Test of English as a Foreign Language (TOEFL) is required of all students for whom English is not the native language.

International students seeking transfer credit for coursework completed at a non-U.S. college or university must present official transcripts from each institution attended and an official syllabus (written in or translated into English) showing duration and content of each course for which transfer credit is sought.

Health insurance coverage is compulsory for all international students including their dependents. Information pertaining to the health insurance coverage may be obtained from the Office of International Student Services, which assists students on campus.

Students holding F-1 (student) visas are required by law to be fully matriculated and be registered for at least 12 credit hours per semester.

Proficiency in the English language is required, and a student who needs additional study in English may be required to take English courses for international students at LIU.

Applications from international students must be accompanied by a nonrefundable application fee and received no later than May 1 for the fall semester and November 1 for the spring semester. When credentials are complete and found to be satisfactory, the applicant will be required to submit a \$500 deposit and a certified statement of financial support. The deposit will be applied to tuition and is not refundable should the student decide not to attend the university. An I-20AB or IAP-66 form will be issued upon receipt of the deposit and statement of financial support. Students should not make plans to come to the United States until they have received the immigration form.

Students should be aware of the high cost of living in New York City and the tuition rates and come prepared to finance their education. A limited number of scholarships are available to students on non-immigrant visas and are awarded primarily to students who have been in attendance at least one year.

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## Veterans

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The rules for admission and advanced credit for veterans under federal and state laws are the same as those for other students.

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## Visiting Students

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The college accepts visiting students who wish to audit or enroll for credit in pharmacy courses on a non-matriculated basis, depending on space availability. Such applicants must submit a Visiting Student Application (available from the Office of Admissions) indicating the specific courses for which they wish to enroll. Applicants who have completed all stated prerequisites will be allowed to enroll, with the approval of the course instructor(s).

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## Readmission

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If a student has been in good academic standing, has withdrawn from all courses and desires to return to LIU Pharmacy within one year of his/her withdrawal, he/she may be considered for readmission by completing an application for readmission, available from the Admissions Office, subject to approval of the assistant dean for Academic and Student Affairs. Students are advised that readmission is not guaranteed except in such cases where a leave of absence has been granted by the assistant dean for Academic and Student Affairs and then only within the time frame established for the leave of absence. Students who have been withdrawn from the college for more than one year are generally not granted readmission. Such time limits do not apply to students who have been fulfilling service requirements in the Armed Forces of the United States.

If a student has been suspended or dismissed for disciplinary reasons and desires to return to LIU Pharmacy, his/her application for readmission is referred to the assistant dean for Academic and Student Affairs. The Assistant Dean's office will advise the student of the following procedure which may be required for readmission: the student may be granted a hearing by the appropriate faculty committee for consideration of action on his/her readmission application. The student is required to submit a written petition stating the nature of his/her problems and a workable solution to those problems. The application for readmission and the petition are then considered by the appropriate faculty committee. The student may be requested to appear before this committee to substantiate his/her position and answer questions. The committee then makes its recommendations and/or recommends performance conditions on the readmission application to the assistant dean for Academic and Student Affairs. The college is not obligated to reconsider an application for

readmission.

If a student has been on academic probation, has withdrawn from all classes and desires to return to LIU Pharmacy, his/her application for readmission is referred to the assistant dean for Academic and Student Affairs. The assistant dean's office will advise the student of the procedure described above, which may be required for his/her readmission. If the assistant dean approves the recommendations of the committee for readmission, such student will be readmitted and is on probation.

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## New York State Immunization Law

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The New York State Health Department requires college and university students born on or after January 1, 1957 to be immunized against measles, mumps and rubella. All students attending the university, including matriculants and non-degree students, must show proof of immunity if they wish to register for classes. In addition, New York State requires that LIU Brooklyn maintain a record of each student's response to the meningococcal disease and vaccine information. The form must be signed by the student and contain either a record of meningitis immunization within the past 10 years OR an acknowledgement of meningococcal disease risk and refusal of meningitis immunization signed by the student.

For information on student procedures for complying with this law, please contact the Campus Life at 718-488-1042.

## PHARM. D. PROGRAM QUALITY INDICATORS

In compliance with accreditation guidelines LIU Pharmacy regularly makes available various quality indicators for the Doctor of Pharmacy program. These are presented below.

### On-time Graduation Rates

On-time graduation rates for recent class cohorts:

Class Year	On-time Graduation Rate
2014	<ul style="list-style-type: none"> <li>205 students were admitted in 2010 as the class of 2014</li> <li>180 graduated on time</li> <li>8 students were academically dismissed; 2 students voluntarily withdrew; 15 students will have a delayed graduation</li> </ul> <p>The on-time graduation rate is 87.8% (180/205)</p>
2013	<ul style="list-style-type: none"> <li>199 students were admitted in 2009 as the class of 2013</li> <li>161 graduated on time</li> <li>10 students were academically dismissed; 15 students voluntarily withdrew; 13 students will have a delayed graduation</li> </ul> <p>The on-time graduation rate is 80.9% (161/199)</p>

### Pharmacist Licensing Examinations

Holders of the Doctor of Pharmacy degree who have fulfilled all scholastic requirements may sit for state board of pharmacy licensing examinations. Graduating students are advised to carefully consult with the boards of pharmacy in the states they are considering to obtain licensure to ensure they comply with regulations concerning internship and licensure requirements.

LIU Pharmacy regularly makes available recent passing rates of graduates taking the national standardized licensure examinations North American Pharmacist Licensure Examination (NAPLEX) and the Multistate Pharmacy Jurisprudence Examination (MPJE) for the first time. Passing rates for first time takers for the most recently available reporting periods are presented below:

NAPLEX Reporting Period	% Passing
2010	83.17%
2011	87.17%
2012	94.09%

2013	94.77%
2014	92.18%
MPJE Reporting Period	% Passing
2010	93.44%
2011	90.06%
2012	96.75%
2013	98.63%
2014	95.89%

### Post-graduation Placements

#### Class of 2014 Placement

(Confirmed through 2/11/15)\*

- 77.24% (95/123) employed in community pharmacy (Includes 0.81% [1/123] in post-graduate residencies)
- 15.45% (19/123) employed in hospital pharmacy (Includes 10.57% [13/123] in post-graduate residencies)
- 3.25% (4/123) employed in pharmaceutical-related industry (Includes 3.25% [4/123] in post-graduate fellowships)
- 0.81% (1/123) other pharmacy-related employment
- 1.63% (2/123) unemployment actively seeking placement

\*Placement status of 123 Graduates (64% of the Class of 2014) confirmed through survey, direct contact with graduate, and/or through employer.

### Other Quality Indicators

#### Class of 2014 Academic Honors

39.44% (71/180) graduating on-time students received Latin honors (GPA of 3.50 or greater)

- 9.44% (17/180) graduated *summa cum laude* (GPA of 3.80 or greater)
- 12.22% (22/180) graduated *magna cum laude* (GPA of 3.70 or greater)
- 17.78% (32/180) graduated *cum laude* (GPA of 3.50 or greater)

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## ACADEMIC POLICY

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### Academic Responsibility

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Candidates for a professional degree from LIU Pharmacy are expected to know the graduation requirements set forth in this publication. It is the responsibility of the student to know and comply with the academic requirements and regulations of the college as well as those of LIU.

All students must seek the counsel of an academic advisor. Students must also meet basic standards of performance established for each class with respect to attendance, promptness in completing assignments, correct English usage, accuracy in calculations, neatness and general quality of workmanship. Fulfillment of these fundamental responsibilities must be recognized by the student as an essential prerequisite to achieving satisfactory academic standing and to being recommended by the faculty for a degree.

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### Full-Time Students

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A full-time student is one who is carrying 12 or more credit hours in each semester. Sixth-year students registered for six or more credits in the summer are considered full-time for the summer session.

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### Academic Status

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**Third-Year Student:** A student who has completed the preprofessional requirements with a minimum GPA of 3.000.

**Fourth-Year Student:** A student who has finished all third-year courses with a minimum GPA of 2.330.

**Fifth-Year Student:** A student who has completed all fourth-year courses with a minimum GPA of 2.330.

**Sixth-Year Student:** A student who has completed all fifth-year courses with a minimum GPA of 2.330.

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### Summer Session(s)

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A maximum of eight credit hours of coursework is allowed during any one summer session except for the sixth-year student's advanced practice experiences or by special permission from the assistant dean for Academic and Student Affairs.

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### Residency / Policy for Taking Courses at Another Institution

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All courses for the professional phase of the Doctor of Pharmacy program (years 3-6) must be taken in residence at LIU Pharmacy. Pre-professional matriculated students at LIU Brooklyn may only take courses at another

institution as a visiting student under the following conditions:

1. Students must file an "Application to Take Courses at Another Institution" with their respective dean's office. Students must provide evidence of course equivalency to the corresponding LIU Brooklyn course. Note: Permission must be granted by the dean, not the student's academic advisor.
2. The other institution must be a four-year accredited institution (two-year community colleges are unacceptable).
3. Students may not take a course at another institution within the New York City metropolitan area (within a 50-mile radius of LIU Brooklyn) if the course is being offered at LIU Brooklyn.
4. If a course required for graduation is not being offered at LIU Brooklyn in a given semester, or the student lives outside the New York City metropolitan area, then permission can be considered.
5. Students must be in good academic standing; students on academic probation cannot be granted permission to attend other institutions.
6. The visiting student authorization becomes automatically invalid if, by the conclusion of the term during which it is granted, the student is placed on academic probation.
7. Only letter grades of C or above are acceptable for transfer credit. Grades of D or P are not transferable. Grades earned at another institution are not used in the computation of either the student's major or cumulative average, they do not remove F grades earned at LIU Brooklyn, nor do they count toward fulfillment of residence requirements or the requirements for graduation with honors.
8. Visiting student authorizations are granted for a maximum of 9 credits.

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### Grades and Symbols

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The following grades are used: A, A-, B+, B, B-, C+, C, C-, D, F, P.

The following symbols are used:

**U:** The symbol U is assigned in certain proficiency courses when a student has completed all work in a fashion unacceptable to warrant a passing grade. The student must repeat the course in the semester immediately following. The symbol U is not computed in the student's average. A student may receive only one U symbol in any course. On the second enrollment, the student must either satisfactorily complete the course or receive an F.

**INC:** The symbol INC (Incomplete) may be assigned if, for reasons acceptable to the instructor, a student has failed to complete a part of the required coursework. An INC is given only at the discretion of the faculty member. It is the

student's responsibility to make specific arrangements with the instructor to complete the coursework and to have the grade submitted to Enrollment Services before the end of the next semester. If the course is completed within the next semester, both the INC and the final grade will appear on the student's permanent record. Satisfactory completion of the course does not eliminate the original "Incomplete" designation.

An INC grade that is not made up during the next semester becomes an F.

**W:** The symbol W (Withdrawn) is assigned when a student officially withdraws from a course in which the student was doing satisfactory work. Students must obtain a Withdrawal Form from Enrollment Services and have this form signed by the instructor of the course(s) concerned. (See also under WITHDRAWAL.)

**UW (Unauthorized Withdrawal):** The symbol UW is assigned when a student unofficially withdraws from a course. The UW is not computed in the student's average.

**PASS-FAIL OPTION:** In elective courses, the student has the option of choosing his or her course grade on a P-F basis or on the regular letter-grade basis. This choice must be made and indicated to the instructor no later than the official withdrawal date for the course. Certain required courses must be taken on a Pass-Fail basis. Grades in Special Projects courses and certain experiential courses are P and F.

**NGR:** A temporary symbol of NGR (No Grade) has been adopted for instances when no grade has been submitted at the time grades are recorded. NGR will automatically be noted by the academic management system when the instructor has not yet submitted the course grades, or leaves one grade blank.

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### Quality Points

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The quality point value 4.000 has been assigned to the grade of A, 3.667 to the grade of A-, 3.333 to B+, 3.000 to B, 2.667 to B-, 2.333 to C+, 2.000 to C, 1.667 to C-, 1.000 to D, and 0.000 to F. The quality points to which a student is entitled are computed by the formula  $X = N \times Y$ , where X is the number of quality points, N the quality point value assigned to the grade, and Y the number of credits.

The GPA is obtained by dividing the sum of the quality points received in all courses by the total number of credits, including unrepeatable F's. A credit is equivalent to 1 lecture or recitation hour and/or 2-3 laboratory hours per semester.

GPA computations are carried to the third decimal place from which rounding takes place to the second decimal place. For example, a computed GPA of 2.994 will be rounded down to 2.990. A computed GPA of 2.995 will be rounded up to 3.000. On all official LIU transcripts, a GPA

will be displayed to three decimal places with the third decimal place always being zero due to rounding.

To graduate, a student must have a GPA of no less than 2.330 in all work and 2.330 in the professional coursework.

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## Dean's List

The Dean's List for each semester of each class year consists of those matriculated students who are registered in that class year, have completed at least 12 credits during that semester, received a passing grade in every subject for that semester and achieved a GPA of 3.500 or more for that semester. Students who earn a C-, D, F, W, WF, UW, U, INC, or ABS in any semester, even though the symbols are subsequently changed to grades, may not be placed on the Dean's List for that semester. A student who receives an NGR (no official grade receive) in any semester will not be placed on the Dean's List until the NGR is replaced with a grade, excluding those listed above, that otherwise qualifies the student for the Dean's List.

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## Attendance

Successful work in LIU Pharmacy is dependent upon regular class attendance. All students are expected to attend classes and to participate in classroom activities. Faculty have the right to weigh attendance and class participation in determining grades. Consequently, excessive absences may impact negatively on the evaluation of a student's performance.

Preprofessional pharmacy students should consult the LIU Brooklyn Undergraduate Bulletin regarding attendance requirements.

For students enrolled in years P-3, P-4, P-5 and P-6, faculty will inform students at the beginning of each semester of policies governing attendance as written in the course outline or syllabus distributed to the students.

Attendance is required of all students in years P-3, P-4, P-5 and P-6 in recitations, laboratories and in Introductory and Advanced Pharmacy Practice Experiences. Students in the experiential programs may be permitted to leave the sites from time to time when returning to the college for special events, upon the approval of the preceptors.

### Tardiness

Students are expected to be present from the beginning of classes and laboratories until the instructor dismisses them. Students are expected to comply with the hours set by preceptors for experiential courses. If students arrive late, they may be denied admission or marked absent. Habitual tardiness and/or failure to attend hours set by preceptors for experiential courses may impact negatively on the evaluation of a student's performance. Additionally, disciplinary action may be undertaken for students with habitual

inattentiveness to punctuality and attendance.

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## Examinations

### Absence from Tests and Examinations

If a student is absent from any test or examination, including a final examination, the instructor may afford or deny him or her an opportunity to make up the work that was missed. In such cases, the instructor is the sole judge of the validity of the student's excuse.

### Absence from a Final Examination

Any student who for any reason is absent from a final examination and who wishes to take a deferred final examination is required to apply, in writing, within five days to the assistant dean for Academic and Student Affairs to ask for permission to take a deferred final examination, giving the reason for the absence from the examination. The student also may need permission from the course instructor, as noted in individual syllabi.

If the absence was caused by sickness or injury, the letter must be accompanied by a medical certificate stating when the illness began or the injury was sustained, and the number of days of confinement recommended by the physician. If the absence was caused by death in the immediate family, the student must indicate the date of death and the relationship to the deceased.

If the absence is justifiable, permission will be granted to take a make-up examination for which a specific fee is charged for each exam up to three exams. An admission card or other suitable evidence of payment must be granted to the instructor before such examinations are given.

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## Graduation Requirements

Upon recommendation of the faculty and approval by the board of trustees, the Doctor of Pharmacy is conferred by LIU upon a candidate who has met the following requirements:

1. Satisfactory completion of the full prescribed curriculum or two or more years in this college and the required equivalent courses in some other registered and accredited college of pharmacy, or departments of a university.
2. Maintenance of a 2.330 or "C+" cumulative GPA in all preprofessional coursework completed and, separately, in the professional courses offered in the years P-3 through P-6.
3. Satisfactory demonstration of computer competency.
4. Satisfactory completion of the minimum requirements of the Writing Across the Curriculum program or equivalent coursework as defined by the college.
5. Settlement of all accounts with the university, including the graduation fee.
6. Evidence of good ethical and professional character.

Students have until the time of their graduation to have changes made on their academic records.

Once a student has graduated, the academic record cannot be changed retroactively.

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## Degrees with Distinction

Students who have completed at least 60 percent of their credits in residence at the college and have achieved a grade point average of 3.500, 3.700, or 3.800 may receive a Doctor of Pharmacy degree *cum laude*, *magna cum laude*, or *summa cum laude*, respectively.

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## Academic Standards

The college reserves the right to dismiss, suspend, or probate, at any time, a student whose academic record is unsatisfactory. Prior notification or prior academic probation is not a necessary precursor to academic dismissal or suspension of students who have unsatisfactory academic records or progress. Any student who at any time fails to demonstrate satisfactory progress as indicated below shall be subject to immediate academic dismissal or suspension upon determination or opinion of the college that the noncompliance with satisfactory progress is of such nature that a period of academic probation shall not be afforded to the student. To be in good standing, a student must make satisfactory progress toward fulfilling all requirements of the program in which he or she is enrolled. Failure to do so will be cause for academic dismissal.

Satisfactory progress is ordinarily demonstrated by completing the six-year Doctor of Pharmacy program in the projected six-year time frame; completing the necessary required and elective courses; maintaining an overall cumulative GPA of 2.330 or greater in all courses attempted; maintaining a cumulative GPA of 2.330 or greater in all professional pharmacy courses attempted that are herein prescribed for the third, fourth, fifth and sixth year of study; achieving a semester, term or session GPA of 2.330 or greater for each semester, term or session attended; and satisfactory and timely completion of additional program requirements, such as completion of the LIU Brooklyn proficiency examinations in computer literacy, satisfaction of the requirements of the Writing Across the Curriculum Program, certification in first aid and cardiopulmonary resuscitation, and certification in pharmacist-based immunization delivery.

LIU Pharmacy is cognizant that there may be a variety of reasons why students may not complete the Doctor of Pharmacy program in the projected six-year time frame. Students who meet all other requirements for satisfactory progress ordinarily are not considered to be making unsatisfactory progress, should they require additional courses as a result of their LIU Brooklyn English and/or mathematics placement, should personal circumstances require a leave of absence from the college or a reduced schedule, if service requirements for students serving in the armed

forces of the United States delay their progress, or if progress has been delayed as a result of unsatisfactory completion of course(s) or as a condition of required remediation due to the academic probationary status of the student. Upon entering the professional phase of the program (third year) the maximum allowable time for the completion of all requirements and the awarding of the Doctor of Pharmacy degree is six years for the projected remaining four years (third, fourth, fifth and sixth years), exclusive of time spent in the armed forces. Students may file a request for an extension of the maximum allowable time with the assistant dean. Students should include in their request an explanation of the circumstances under which they require an extension to complete their degree requirements. The assistant dean for Academic and Student Affairs will consider the request and may consult with the college's Scholastic Committee regarding the request. The student will be duly notified as to whether or not his or her request for an extension has been granted. Any courses outside the time limit will not count as credits toward the degree unless approved in writing by the assistant dean for Academic and Student Affairs.

Failure to satisfy any of the above-listed indicators of satisfactory progress is cause for academic dismissal, suspension or probation and any one or more of the three (dismissal, suspension, or probation) will be applied immediately upon failure to maintain satisfactory progress. If dismissal or suspension are not applied, then probation will apply.

Academic probation is most typically the initial official action for a student failing to make satisfactory progress. Every attempt is made by LIU Pharmacy to duly notify students that they have been placed on probation. Students in LIU Pharmacy, as students enrolled in a professional program, are expected to be fully aware of the requirements for satisfactory progress and are expected to be fully capable of determining whether their own academic progress is in compliance with the requirements for satisfactory progress. As such, all students are further expected to understand that if academic dismissal or suspension is not immediately applied in their case that their status is probationary, whether or not they receive notification from LIU Pharmacy in that regard. All students failing to make satisfactory progress are expected to take initiative towards remediation of unsatisfactory progress.

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### Academic Probation

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Conditions of a student's academic probation are as follows:

1. Typically, the maximum number of semesters, terms or sessions exclusive of summer sessions, of academic probation permitted is two during the preprofessional phase (P-1 & P-2) of study and two during the professional phase (P-3, P-4, P-5 and P-6) of study. The two semesters

may be either consecutive or separate. Any student who is on or qualifies for probation for a third semester in either the preprofessional phase or professional phase of study will, with great probability, be academically dismissed from the college. On rare occasions, upon review by the assistant dean for Academic and Student Affairs and/or the college's Scholastic Committee, additional semesters, terms or sessions of academic probation may be afforded the student in order for the student to remedy his or her noncompliance with the standards of satisfactory academic progress. When such extension of academic probation is granted, it shall not be construed that further extensions will be granted or that the possibility of academic dismissal or suspension is lessened should noncompliance with the standards of academic progress continue to exist at the conclusion of the probationary period extension. Students on extensions of academic probation are typically required to conform to a written agreement regarding their academic progress. Failure to achieve the levels of academic performance as specified in the agreement is cause for academic dismissal from the college.

2. Students who are not in compliance with the standards of academic progression for any reason are not permitted under any circumstances to enroll and/or participate in any courses with experiential components. Students who come into noncompliance with the standards of academic progression at any time that they may be enrolled or participating in any courses with experiential components will immediately be required to withdraw from those courses and will not be permitted to re-enroll or participate in such courses until their noncompliance with the standards of academic progression are remedied.
  3. A student who has been placed on academic probation is limited in participation in extracurricular activities. A probationary student may hold membership in clubs, organizations and fraternal societies. A probationary student is barred from holding any office, chair or committee seat in such clubs, organizations and fraternal societies. A probationary student may attend lectures and other events sponsored by such clubs, organizations and fraternal societies and/or by the college that are deemed to be of an educational nature.
  4. A student on academic probation is/may be required to participate in academic counseling and/or enroll in a remedial program of study.
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### Academic Suspension

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Academic suspension may occur in those cases when it is the determination of LIU Pharmacy that the particulars of a student's failure to achieve satisfactory progress are of such nature that a

period of time away from the college would likely improve the prospects for remediation of unsatisfactory progress when the student is permitted to resume his/her studies. By way of example, academic suspension might be prescribed when a student indicates that his/her failure to maintain satisfactory progress is due to some type of personal circumstance, such as infirmity, family problems or economic difficulties. In such cases, the college may require a period of academic suspension of from one-to-two semesters of study until such time that the extenuating causes that have been determined to be factors in the student's unsatisfactory progress have been reasonably ameliorated. Academic suspension may also be applied when the student's academic difficulties have created a situation where he/she may need to repeat courses in order to meet the prerequisite qualifications to move forward into the next term of study.

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### Academic Dismissal

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The college reserves the right, as previously noted, to academically dismiss a student at any time if a determination is made, after a thorough review by the assistant dean for Academic and Student Affairs and/or the Scholastic Committee of the college, that the student's academic record is unsatisfactory or otherwise does not comply for any reason with the standards of satisfactory academic progress. Typically, academic dismissal occurs whenever a determination has been made by LIU Pharmacy that a student's failure to maintain satisfactory progress is of such severity or length of time, as defined by the following guidelines, that the student should be permanently withdrawn from the college. When applying a standard of length of time to an academic dismissal, except in those rare instances, as noted above, where an extension of academic probation may be granted, dismissal will be applied whenever the student has maintained, for two semesters, an overall cumulative GPA of less than 2.330 in all courses attempted, two semesters of maintaining a cumulative GPA of less than 2.330 in all professional pharmacy courses attempted that are herein prescribed for the third, fourth, fifth and sixth year of study, or two semesters, terms or sessions accumulating two instances of a GPA of less than 2.330 for a semester, term or session attended. When applying a standard of severity to an academic dismissal, a dismissal may be applied at any time that a student has acquired an overall GPA of 1.750 or less in all courses attempted or a GPA of 1.750 or less for a semester, term or session attended. For students in the professional phase of the program (3rd, 4th, 5th or 6th year) academic dismissal may be applied if the cumulative GPA in all professional courses attempted that are herein prescribed for the third, fourth, fifth and sixth year of study is 1.750 or less after one semester of study in the professional phase, 1.950 or less after two semesters of study in

the professional phase, or 2.200 or less after three or more semesters of study.

A student may appeal an academic dismissal once by petition to the Scholastic Committee of the college. The petition should present a thorough analysis by the student of the reasons for having failed to maintain satisfactory academic progress and a comprehensive plan for rectifying his/her deficiencies within a reasonable period of time, preferably after one semester of study but not exceeding two semesters of study, and that conforms with all other academic regulations of the college. The petition is considered by the Scholastic Committee which may request that the student appear before this committee to substantiate his/her position and answer questions. The committee then makes its recommendations on the petition to the assistant dean for Academic and Student Affairs. Students are advised that successful appeals of academic dismissals are rare and usually occur only in those circumstances where substantive underlying causes for unsatisfactory academic progress were previously unknown to the college. Generally, as noted above, in cases where substantive underlying causes exist for unsatisfactory progress, an extension of academic probation will have been granted to allow the student additional opportunity to remedy his/her noncompliance with satisfactory academic progress. Decisions of the Scholastic Committee and/or the assistant dean for Academic and Student Affairs that a student believes may demonstrate arbitrary and capricious treatment or to be fundamentally unfair may be appealed, as a final step, to the dean of LIU Pharmacy.

## Criminal Background and Drug Testing

A criminal conviction and/or the use of illegal drugs may impede or bar your entry into your chosen field of study. Students seeking entrance into many graduate fields of study including counseling, education, and health and human services professions should be aware that a criminal record can result in the refusal of licensing/certification/registration agencies to issue the credential needed to practice in that field of study. Prospective students are urged to contact the pertinent state and/or federal licensing agency to inquire whether a criminal record will have an impact on licensure or certification eligibility.

Many clinical/field experience affiliates now require the completion of criminal background checks and/or drug testing for employees, volunteers and students affiliated with the site. Therefore, students who plan to participate in a clinical/field experience may be asked to undergo a criminal background check, and/or a drug screen. Students should be aware that our clinical/field affiliates may reject or remove a student from the site if a criminal record is discovered or if a drug test is positive. In the event that a student is

rejected from a clinical/field site due to information contained in the criminal background check, or drug screen, the student may be unable to complete a required clinical/field experience. In such an event, the student may be advised to withdraw from the program.

### Policy/Procedure on Criminal Background Checks for Doctor of Pharmacy Students

#### Process/Procedures

LIU Pharmacy requires each student in the professional program to obtain an annual criminal background check report. The Office of Experiential Education uses Validity Screening Solutions to perform background checks. Contact information for Validity Screening Solutions is as follows:

- Technical questions: 913.322.5995
- Toll-free: 866.920.5995
- Email (for students):  
students@validityscreening.com
- <http://www.validityscreening.com/>

The Office of Experiential Education initiates the background check process by emailing the students a reminder of this requirement and provides a deadline for completion. Instructions for completing the criminal background checks are found on RxPreceptor by going to "Communications/Support" then "Document Library". The document is titled, "Instructions for Completing a Criminal Background Check". Students are required to follow all instructions provided by Validity Screening Solutions and complete the process within the allotted time frame. Failure to complete the screening within the allotted time frame may result in inability to participate in experiential education, including withdrawal from assigned course/site, and possible disciplinary action. Students are responsible for all fees associated with the screening.

Results of the background checks are available to students by the vendor (Validity Screening Solutions) within a few days after completion. It is the student's responsibility to obtain copies of his/her reports to share with experiential sites upon request. Instruction for obtaining copies of reports may be found on RxPreceptor by going to "Communications/Support" then "Document Library". The document is titled, "Instructions for obtaining a copy of Criminal Background Check Report". Completed reports are also emailed to the Office of Experiential Education by the vendor. Results from a company other than Validity Screening Solutions will not be accepted by the college.

Practice sites may request that students complete additional background checks. It is the responsibility of the student to comply with site policies for background checks and/or provide practice sites with a copy of the results (if requested). Practice sites reserve the right to require screening by any vendor acceptable to

them.

Any questionable findings from the criminal background check will be flagged by Validity Screening Solutions and will be reviewed on an individual basis by the members of the Office of Experiential Education and may be shared with the Criminal Background Check and Drug Screening Review Committee, assistant dean for Academic and Student Affairs, legal counsel, or other designated individuals. Questionable findings obtained from criminal background checks may delay or prevent students from completing introductory and/or advanced pharmacy practice experiences (IPPEs and/or APPEs), continuing in the program, and/or graduating.

#### Review of Background Check Results

Students have the right to review the information reported by the designated vendor for accuracy and completeness and to request that they verify that the criminal background information provided is correct. All disputes pertaining to the criminal background check findings must be communicated in writing directly to the contracted company that conducted the check (Email (for students): students@validityscreening.com). In addition, the student must inform the Office of Experiential Education by emailing a copy of the complaint statement to BkIn-OEE@liu.edu and include "Dispute of Criminal Background Check Results" in the subject line. Re-verification will be made if the company determines that reasonable grounds exist. If parts of the report are deleted or changed because of re-verification, the Office of Experiential Education and the student will receive a corrected report.

Results from the criminal background check will be reviewed as follows:

- The report submitted to the college by the vendor will be reviewed by members of the Office of Experiential Education.
- If the report shows a questionable finding, a representative from the Office of Experiential Education may request that the student submit additional information relating to the finding(s) on the report, such as a written explanation, court documents and/or police reports.
  - Prior to making a final determination that will adversely affect the student, the Office of Experiential Education will inform the student of his or her rights and the procedures regarding how to challenge the accuracy of the criminal background check report.
- If deemed necessary, the director of Experiential Education will submit the report and any additional information provided by the student for review by other designated individuals, such as but not limited to, The Criminal Background Check and Drug Screening Review Committee. The director of Experiential Education will forward this information as soon as possible after the disclosure or discovery of the questionable

finding(s).

- If convened, the Criminal Background Check and Drug Screening Review Committee will review all information provided and provide a formal, written recommendation to the assistant dean for Academic and Student Affairs. Recommendations from the Criminal Background Check and Drug Screening Review Committee may include:
  - Allow the student to proceed in the academic program without restriction
  - Allow the student to proceed in the academic program with specified terms and conditions
  - Suspend the student or arrange for a leave of absence to address the issue(s) identified
  - Dismiss the student
- The assistant dean for Academic and Student Affairs will review the committee's recommendation and make a final decision, which will be communicated to the student and the Office of Experiential Education in writing.
- The assistant dean for Academic and Student Affairs, with or without involvement of other designated individuals, may dismiss the student, suspend the student, or require the student to comply with specific terms and conditions for any duration of participation in the program. Notification from the university/college that a student is dismissed, suspended, or otherwise required to comply with set conditions will be done via letter from the Office of Student and Professional Affairs. A student may appeal that decision in accordance with the university's grievance procedure found in the LIU Pharmacy Bulletin and on the LIU website at <http://www.liu.edu/Brooklyn/Academics/Bulletins/Pharmacy-Bulletin>.

*College Disclaimer*

The LIU Pharmacy Criminal Background Check process does not guarantee the safety of students, patients, faculty, or staff. In addition, an acceptable criminal background check, as defined by the college, state, or experiential site; does not guarantee the student will be eligible to complete the program or obtain a license to practice pharmacy upon graduation.

*Fair Credit Reporting Act*

If an employer hires an outside individual or firm to conduct a criminal background check, the employer is subject to the Fair Credit Reporting Act (FCRA). Although FCRA does not explicitly include educational institutions, the applicability to colleges and schools of pharmacy may depend on legal interpretation and circumstances. A link to an individual's rights under the federal Fair Credit Report Act (FCRA) 15 U.S.C. § 1681 et seq. A copy of the FCRA is available online at <http://www.ftc.gov/bcp/online/pubs/credit/fcra-summary.pdf>

**Policy/Procedure Drug Screening for Doctor of Pharmacy Students**

*Process/Procedures*

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- Email (for students): [students@validityscreening.com](mailto:students@validityscreening.com)
- <http://www.validityscreening.com/>

Students are made aware of the requirement during initial orientation at the beginning of the P-3 year but since screening is random, they are not provided the time frames in advance. The Office of Experiential Education initiates the drug screen process by emailing the students a reminder of this requirement and instructs each student to go to certain commercial laboratories to have the drug screen performed. Many affiliated laboratories have early morning, late evening, and/or weekend hours. The screening is required at a minimum once per year but additional, more frequent screenings may be required by individual sites. The time frame for completion of the drug screen is provided to students in the email and is usually within 72 hours from the time of notification. Instructions for completing the drug screen are found on RxPreceptor by going to "Communications/Support" then "Document Library". The document is titled, "Instructions for Completing a Drug Screen". Students are required to follow the instructions provided by Validity Screening Solutions and complete the process within the allotted time frame. Failure to complete the screening within the allotted time frame may result in inability to participate in experiential education, including withdrawal from assigned course/site, and possible disciplinary action. Students are responsible for all fees associated with the screening.

Results of the drug screening are available to students by the vendor (Validity Screening Solutions) within a few days after completion. It is the student's responsibility to obtain copies of his/her reports to share with experiential sites upon request. Instruction for obtaining copies of reports may be found on RxPreceptor by going to "Communications/Support" then "Document Library". The document is titled, "Instructions for obtaining a copy of Drug Screening report". Completed reports are also emailed to the Office of Experiential Education by the vendor. Results from a company other than Validity Screening Solutions will not be accepted by the college.

Practice sites may request that students complete additional and/or more frequent drug screening. It is the responsibility of the student to comply with site policies for drug screening and/or provide practice sites with a copy of the results (if

requested). Practice sites reserve the right to require screening by any vendor acceptable to them.

Any undesirable findings from the drug screen will be flagged by Validity Screening Solutions and will be reviewed on an individual basis by the members of the Office of Experiential Education and may be shared with the Criminal Background Check and Drug Screening Review Committee, assistant dean for Academic and Student Affairs, legal counsel, or other designated individuals. Undesirable findings obtained from drug screening may delay or prevent students from completing introductory and/or advanced pharmacy practice experiences (IPPEs and/or APPEs), continuing in the program, and/or graduating.

*Review of Drug Screen Results*

Students have the right to review the information reported by the designated vendor for accuracy and completeness and to request that they verify that the drug screening information provided is correct. All disputes pertaining to the drug screen findings must be communicated in writing directly to the contracted company that conducted the check (Email (for students): [students@validityscreening.com](mailto:students@validityscreening.com)). In addition, the student must inform the Office of Experiential Education by emailing a copy of the complaint statement to [Bkln-OEE@liu.edu](mailto:Bkln-OEE@liu.edu) and include "Dispute of Drug Screening Results" in the subject line. Re-verification will be made if the company determines that reasonable grounds exist. If parts of the report are deleted or changed because of re-verification, the Office of Experiential Education and the student will receive a corrected report.

Results from the drug screen will be reviewed as follows:

- The report submitted to the college by the vendor will be reviewed by members of the Office of Experiential Education.
- If the report shows undesirable finding(s), a representative from the Office of Experiential Education may request that the student submit additional information relating to the findings on the report, such as a written explanation, prescription(s) from a licensed physician, etc.
  - Prior to making a final determination that will adversely affect the student, the Office of Experiential Education will inform the student of his or her rights and the procedures regarding how to challenge the accuracy of the drug screening report.
- If deemed necessary, The director of Experiential Education or designee will submit the report and any additional information provided by the student for review by other designated individuals, such as but not limited to, The Criminal Background Check and Drug Screening Review Committee. The director of Experiential Education or designee will forward this information as soon as possible after the disclosure or discovery of the undesirable finding(s).



- If convened, the Criminal Background Check and Drug Screening Review Committee will review all information provided and provide a formal, written recommendation to the assistant dean for Academic and Student Affairs. Recommendations from the Criminal Background Check and Drug Screening Review Committee may include:
  - Allow the student to proceed in the academic program without restriction
  - Allow the student to proceed in the academic program with specified terms and conditions
  - Suspend the student or arrange for a leave of absence to address the issue(s) identified
  - Dismiss the student
- The assistant dean for Academic and Student Affairs will review the committee's recommendation and make a final decision, which will be communicated to the student and the Office of Experiential Education in writing.
- The assistant dean for Academic and Student Affairs, with or without involvement of other designated individuals, may dismiss the student, suspend the student, or require the student to comply with specific terms and conditions for any duration of participation in the program. Notification from the university/college that a student is dismissed, suspended, or otherwise required to comply with set conditions will be done via letter from the Office of Student and Professional Affairs. A student may appeal that decision in accordance with the university's grievance procedure found in the LIU Pharmacy Bulletin and on the LIU website at <http://www.liu.edu/Brooklyn/Academics/Bulletins/Pharmacy-Bulletin>

#### *College Disclaimer*

The LIU Pharmacy Drug Screening process does not guarantee the safety of students, patients, faculty, or staff. In addition, an acceptable drug screen, as defined by the college, state, or experiential site; does not guarantee the student will be eligible to complete the program or obtain a license to practice pharmacy upon graduation.

#### *Fair Credit Reporting Act*

If an employer hires an outside individual or firm to conduct a drug screen, the employer is subject to the Fair Credit Reporting Act (FCRA). Although FCRA does not explicitly include educational institutions, the applicability to colleges and schools of pharmacy may depend on legal interpretation and circumstances.

## Public Information Policy

The Family Educational Rights and Privacy Act (FERPA) of 1974 specifically provides that a school may provide what they deem 'directory information,' and only this information, without the student's consent or as provided by the the

law. Directory information at Long Island University includes the following: the student's name, enrollment status, major field of study, dates of attendance, degrees and awards received, past and present participation in officially recognized sports and non-curricular activities, physical factors (height, weight) of athletes and the most previous educational agency or institution attended. Students who wish to have their directory information withheld can make this election by filing the appropriate form at Enrollment Services.

## Related Curricular Matters

### **Minors and Double Majors**

In addition to having the professional program in pharmacy as a student's major students may wish to have a minor. A minor may consist of at least 12 credits in courses numbered over 100 in a department or discipline other than LIU Pharmacy. A student must have permission of the assistant dean for Academic and Student Affairs to complete a minor. Once a student successfully completes 12 or more credits in courses numbered over 100 for a minor, the assistant dean for Academic and Student Affairs will notify Enrollment Services to enter the minor on the student's transcript. Due to the course requirement of the Doctor of Pharmacy program plan, in the vast majority of cases electing to pursue a minor will necessitate additional credits for the completion of the degree.

Students pursuing the Doctor of Pharmacy program are not permitted to pursue a double major.

### **Electives**

Generally, students are expected to enroll in elective offerings of Doctor of Pharmacy program of LIU Pharmacy to fulfill the elective requirements for the degree. On occasion, students may be granted permission to take graduate course offerings of LIU Pharmacy and/or course offerings from other colleges and schools of LIU Brooklyn. Students wishing to receive credit for the fulfillment of professional elective requirements for courses outside of those offered as professional electives must seek permission from the assistant dean of Academic and Professional Affairs in advance of enrolling in such courses. Students are expected to present written statements indicating their reasoning for enrollment in electives other than those offered through the Doctor of Pharmacy degree program.

### **Repeating Courses**

Students may repeat any course to improve the grade, no matter what the previous grade was. To repeat a course more than once, they must have permission of the assistant dean for Academic and Student Affairs.

All "F"-graded professional coursework must be successfully repeated as soon as the course is offered again (exclusive of summer sessions).

A course in which a student received a grade of

"C" may be repeated only if all courses in which an "F", "D", or "C-" grade previously earned have been successfully repeated with a "C" or better.

A required course in the professional curriculum may not be repeated more than twice. Failing a required professional course three times is cause for dismissal. Credit will be earned only once, and the second grade, whether higher or lower, will be computed in the student's GPA. After the second time a student takes a course, all grades except the first will be computed in the student's GPA.

The college is not obligated to offer courses that the student has failed in the academic term immediately following the failure.

### **Prerequisites**

Students are not permitted to register for any professional course unless all science and math and 21 Liberal Arts prerequisites have been successfully completed. Students are responsible for knowing the prerequisites for courses as stated in this bulletin. Students found to be enrolled in a course for which they have not met the prerequisites will be withdrawn from the course regardless of the point in that course where the discovery is made. Students are advised that the lack or the failure of a prerequisite course may significantly impede their academic progress by preventing their enrollment in one or more subsequent courses. Many courses are offered only once a year; hence failure of a course may result in a delay of a year until such course is repeated and the student is authorized to enroll in subsequent courses.

## ACADEMIC AWARDS

### College Gold Medal

This award is given to the student having the highest general standing in the third, fourth, fifth, and sixth year's work.

### College Silver Medal

This award is given to the student having the second highest general standing in the third, fourth, fifth, and sixth year's work.

### College Bronze Medal

This award is given to the student having the third highest general standing in the third, fourth, fifth, and sixth year's work.

### Arnold & Marie Schwartz College of Pharmacy and Health Sciences Professionalism Award

This award is given to a graduating senior who exhibits the ideals of professionalism by exceptional service and commitment to the profession of pharmacy through involvement in professional organizations or other extracurricular opportunities; has assumed a leadership role; and maintained good academic standing.

### Anderson Award

This prize, consisting of a medal and a \$400 check, is given to the student having the highest standing in Pharmaceutics III and IV.

### APhA-ASP Senior Recognition Certificate

The American Pharmacists Association honors a graduating student member who has made the greatest contribution to his or her APhA-ASP chapter with a Senior Recognition Certificate.

### Pola and John Bradman Award in Leadership and Service

This award is given to a graduating student who has excelled in service and leadership by playing an active role on behalf of the student body and who has maintained an index of 2.75 or better.

### Wolters Kluwer Clinical Drug Information Award of Excellence in Clinical Communication

This award, sponsored by Wolters Kluwer Health, recognizes high academic achievement and outstanding clinical communication skills. The recipient must be in the top 25% of his/her class academically and shall have demonstrated superior verbal and written communication skills. The recipient receives the following: an electronic award certificate, a 1-year subscription to Facts & Comparisons eAnswers (online), and a 1-year subscription to Lexi-COMPLETE.

### Irwin and Lenore Gerson Award

This award is given to a graduating student for qualities of leadership and excellence in pharmacist/patient communication.

### Seymour Katz Memorial Award

Established by The Royal Counties of New York Society of Hospital Pharmacists in memory of Seymour Katz, FASHP, M.S.'74, this award is presented to the editor of *Pharmakon*-the college yearbook and consists of a prize of \$500, a certificate, and a one-year membership in the New York State Council of Health-system Pharmacists.

### Professor Shirley Kraus Research Award

A plaque is awarded to an entry-level Doctor of Pharmacy degree candidate who has conducted a research project under the supervision of a faculty member in the Division of Pharmaceutical Sciences.

### Lilly Achievement Award

A recent edition of a reference book provided by Lilly is given to a student who has demonstrated superior scholastic and professional achievement, and qualities of leadership.

### New Jersey Pharmacists Association (NJPhA) Award

The New Jersey Pharmacists Association presents a certificate of appreciation to a student who is an active member in the city chapter with plans for staying involved after graduation. Additionally, one free full-year pharmacist membership to NJPhA is provided to the recipient upon graduation.

### Membership in the Pharmacists Society of the State of New York

This award is presented to a graduating senior that has demonstrated an active interest in the profession, displayed capacity for leadership in the profession, and has a record for public service.

### Merck Awards

The Merck Manual is awarded to outstanding students in pharmacy studies. The first award goes to the student who has attained the highest scholastic standing in Medical Physiology and Pathophysiology; the second award to the student who has attained the highest scholastic standing in Biochemical Foundations of Therapeutics; the third award to the student who has attained the highest scholastic standing in Medical Microbiology/ Immunology; the fourth award to the student who has attained the highest scholastic standing in Pharmacology and Medicinal Chemistry; and the fifth award to the student who has attained the highest scholastic standing in Iatrogenic Diseases.

### Mylan Pharmaceuticals Excellence in Pharmacy Award

This award is presented to a student in the top 25 percent of his/her class academically, who has demonstrated high professional motivation and the intent to enter practice upon graduation.

### Elsevier/Gold Drug Reference Information Award

This award is presented to a student in the top 25% of his/her class academically who has demonstrated excellence in the use of drug reference information for the benefit and care of patients through a project in a required or elective course. The recipient will receive a monetary award of \$250 as a Visa gift card and a complimentary one-year subscription to Clinical Pharmacology.

### Natural Medicines Comprehensive Database Recognition Award

Presented to a graduating student who has exhibited an interest in the use of natural medicines, and whose academic and/or extracurricular activities demonstrate that the student exhibits outstanding promise in the assessment, evaluation, or delivery of patient care related to the use of natural medicines.

### Steven Strauss Pharmacy Law Award

This award is presented to a graduating student who has demonstrated superior academic achievement in pharmacy law courses, who exemplifies the highest principles of moral and ethical conduct, and who has played a leadership role among students.

### TEVA Pharmaceuticals USA Student Award

This award is given to a graduating student who excels in the study of pharmacy.

### The United States Public Health Service Excellence In Public Health Pharmacy Practice Award

This award is presented to a student who has shown excellence in educational and community-based programs to advance the goals stated in "Healthy People 2010."

### Demonstrating Excellence in Extemporaneous Pharmaceutical Compounding Award

This award is given to a graduating student who excels in compounding skills and has achieved the best scores in laboratory. The award is sponsored by Dr. Anthony Cutie and consists of a plaque and a \$400 check.

### Stephen M. Gross Faculty Council Award

This award is given to a graduating student based on academic performance and professional motivation.

### The Arnold & Marie Schwartz College of Pharmacy and Health Sciences Mary M. Lai Community Service Award

This award was established in honor of Mary Lai '42, H'86 Senior Advisor and Trustee Emerita, in recognition of her generosity and responsiveness to the needs of others within and outside of the university community. The award recognizes a graduating student who volunteers his/her time,

energy and talents in our college or community, motivates others to get involved and works with others to make a difference.

**Arnold & Marie Schwartz College of Pharmacy and Health Sciences Pharmacy Excellence Award**

Candidates for this award must display a commitment to patient-centered care, show superior academic achievement and the ability to translate clinical knowledge into practical patient care. Special consideration will be given to a student interested in pursuing postgraduate training/education.

**Arnold & Marie Schwartz College of Pharmacy and Health Sciences Excellence in Pharmacotherapy**

This award recognizes a graduating senior with high academic achievement in the Pharmacotherapeutics course series and who demonstrated outstanding promise in the delivery of patient-centered care.

**Amatucci Award for Academic and Athletic Excellence**

A \$400 monetary award and plaque will be given to a graduating Pharm.D. student that has earned a minimum of a 3.0 overall GPA and has been a member of a Division I Long Island University Department of Athletics team for a minimum of three years in his/her designated sport.

**Alumni Association Board of Directors Professional Excellence Award**

This award is given to a graduating sixth year student who has a GPA of 3.0 or higher and exhibits a commitment to volunteerism through a record of service to the college, colleagues, community and profession.

## REGISTRATION

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### Registration and Advisement

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Students may register either online or in-person. Students should routinely and closely monitor notifications while they are logged into MyLIU.edu regarding online appointment dates and times for self-service registration for upcoming academic terms. Students desiring to register in-person should make appointments with academic advisors in the college's Office of Student and Professional Affairs during the registration periods specified in the published academic calendars.

Academic advisors are available at all times during normal business hours to assist students with issues regarding class selection and scheduling as well as academic progress. Advisors also provide guidance to students in matters regarding academic probation.

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### Auditing of Courses

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Auditing of courses (without credit) is allowed only with the permission of the assistant dean for Academic and Student Affairs. The audit fee is set at one-half the regular tuition fee, plus the full application fee for new students. On behalf of special programs of instruction, the assistant dean for Academic and Student Affairs may authorize exceptions to the rules for auditing.

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### Withdrawal

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#### Withdrawal from All Courses

Students in good academic standing who wish to spend a period of time away from the college or students who are on academic probation and who want to withdraw from all classes must give a valid reason and (a) obtain, from Enrollment Services, an Application for Permission to Withdraw, complete it, as indicated, and have it approved by the assistant dean for Academic and Student Affairs, and (b) clear their financial account.

#### Withdrawal from One or Several Courses

When students are registered for a course, they are considered to be in attendance until the date of their official withdrawal.

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### Administrative Matters

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#### Cancellation of Courses

LIU Pharmacy reserves the right to cancel undersubscribed courses. When it does so, there is no program change fee.

#### Change of Address or Telephone Number

All professional students must report changes of address, telephone number, and/or email address to LIU Brooklyn Enrollment Services and to the LIU Pharmacy Office of Student and

Professional Affairs.

#### Academic Records

Students have until the time of their graduation to have changes made on their academic records. Once a student has graduated, the academic record is frozen and cannot be changed retroactively.

#### Failure to Fulfill Nonacademic Requirements

Students failing to fulfill all nonacademic requirements (tuition, fees, library obligations, etc.) will be denied subsequent services, including, but not limited to, withholding of diplomas, transcripts, letters of recommendation or licensure eligibility until those requirements are met.

## PROFESSIONAL PROGRAM TUITION AND FEES (2015-2016)

Students are billed for tuition and fees at the time of registration. Room and board charges are reflected at the time of room assignment. Students must make satisfactory payment arrangements prior to the start of each term or before moving into residence halls to remain in good financial standing.

Students must make acceptable payment arrangements or officially withdraw prior to the start of classes to remain in good financial standing.

Acceptable payment arrangements include:

- Payment in full using check or credit card;
- Approved financial aid covering all charges;
- Signed and approved University Payment Plan Agreement Form; and/or
- Participation in an approved third-party payment agreement.

A student who complies with any of the above shall be considered in good financial standing, so long as all conditions are met throughout the term. All payment arrangements must be completely satisfied or late payment fees and/or penalties will be applied to your account. If your balance becomes seriously past due and no arrangements are made, the university will refer it to an external collection agency or law firm, where additional fees and penalties may be charged to your account. All policies can be found online at [www.liu.edu/enrollment-services](http://www.liu.edu/enrollment-services).

### Tuition and Fees

Application Fee (non-refundable)	\$50
Tuition Deposit (non-refundable)	500
Pharm.D., Years 1-2, per credit (less than 12 credits)	1,051
Pharm.D., Years 3-5, per credit (less than 12 credits)	1,244
Pharm.D., Community IPPE (PH 312), per term	2,040
Pharm.D., Years 1-2, per term	16,839
Pharm.D., Years 3-5, per term	19,910
Pharm.D., Year 6, per year (37.5 credits)	42,000
Dining Dollars, 9+ credits, per term	50
University Fee:	
12+ credits, per term	884
Less than 12 credits, per term	442

A detailed listing of all tuition and fees can be found at [www.liu.edu/enrollment-services](http://www.liu.edu/enrollment-services).

### Residence Life

#### ACCOMMODATIONS (per term)

Housing Deposit (non-refundable)	\$300
Conolly Hall:	
Single	7,650
Standard Double	3,831
Standard Triple	2,887
Suite Double	4,563
Suite Triple	4,170
Suite Quad	4,351

Apartment Double	5,582
Apartment Triple	5,083
Apartment Quad	5,741
Hoyt Hall:	
Suite Double	5,667
Suite Triple	5,370
Suite Quad	5,551
Suite Quintuple	5,964
Apartment	7,174

#### MEAL PLANS (per term)

Residential Meal Plan 1 (unlimited meals plus \$300 dining dollars)	2,469
Residential Meal Plan 2 (14 meals per week plus \$300 dining dollars)	2,259
Residential Meal Plan 3 (10 meals per week plus \$300 dining dollars)	2,049
Residential Dining Dollars	300
Dining Dollars+ Plan (\$200 additional dining dollars)	200

All resident students are required to participate in a meal plan. The Residential Dining Dollars plan is only available to residents in apartments with kitchens. Dining dollars can be used at point of sale locations across the campus.

### Tuition Liability and Refund Policy

Students are responsible for knowing that they are registered for classes, that they are expected to pay for these classes in a timely manner, and must understand and follow the correct procedures to withdraw from classes. **Non-attendance and/or non-payment do not constitute official withdrawal from the university.** The calculation of your tuition and fee liability, if any, is based on the date of your official withdrawal or drop in accordance with university policy. Room and board charges must be cancelled through the Office of Campus Life. Liability for these charges are assessed on a pro-rata basis at the time of cancellation.

When a student withdraws, the university will refund tuition and fees as per the following schedules:

#### Fall and Spring Regular Sessions

Period	Liability
Weeks 1-2	0%
Weeks 3-4	50%
Weeks 5+	100%

#### Summer and Other Multi-Week Sessions Seven Weeks or Greater

Period	Liability
Week 1	0%
Week 2	50%
Week 3+	100%

#### Summer and Other Multi-Week Sessions Less Than Seven Weeks

Period	Liability
Day 1-2	0%
Day 3-5	50%
Day 6+	100%

Students requesting a review of their assessed tuition and fee liability must complete the appeals form for student withdrawals in accordance with university policy and submit all required supporting documentation. Detailed policies and procedures can be found at [www.liu.edu/enrollment-services](http://www.liu.edu/enrollment-services).

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## Student Health Insurance

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Long Island University has partnered with Gallagher Koster to develop a cost-effective Student Health Insurance Plan that provides our students and families with robust medical coverage at school, back home, and while traveling or studying abroad. All international students, clinical students, residential students, Global College students and intercollegiate athletes qualify and are automatically enrolled in the plan but can waive participation online at [www.gallagherstudent.com/liu](http://www.gallagherstudent.com/liu) if they have comparable coverage under a family plan or other policy.

### Annual Rates

- Mandatory and Compulsory/Hard Waiver Students - \$2,193
- Spouse/Domestic Partner - \$2,193
- Each Additional Child - \$2,193

Qualifying new students who enter during the Spring or Summer terms can participate in the plan with prorated coverage periods and rates.

### Enrollment/Waiver Periods

Annual Plan: July 1 – September 30

Spring Plan: January 1 – February 15

Summer Plan: May 15 – July 1

Beginning on July 1st, students can go to their My LIU account and click on the "Student Health Insurance" link from the Student Center Home Page to enroll in the plan, waive coverage, print temporary ID cards, and file or check claims. Coverage begins on August 15, 2015, which represents the start of the plan year, and extends through August 14, 2016. You can also visit the Gallagher Koster website directly at [www.gallagherstudent.com/liu](http://www.gallagherstudent.com/liu).

## FINANCIAL AID

Financial aid is awarded on an annual basis in the form of scholarships, grants, loans and part-time employment. Since the Pharm. D. program is six years in length, there are special considerations for financial aid funding that are outlined by the federal government for the undergraduate component of the program vs. the graduate component.

## Application Process

All candidates for LIU scholarships or grants, federal grant and loan programs, work-study opportunities, and New York State Tuition Assistance Program (TAP) grants are required to complete the Free Application for Federal Student Aid (FAFSA) each year. The FAFSA should be completed online at [www.fafsa.ed.gov](http://www.fafsa.ed.gov). The federal school code for LIU Brooklyn is **002751**. Residents of New York State must also complete the Tuition Assistance Program (TAP) application using the LIU school code of **0403**. Continuing students at LIU must reapply for financial assistance each year.

Applicants for financial aid are expected to apply for federal Pell Grants, and those who are legal residents of New York State are expected to apply for TAP awards. Applicants for financial aid may expect to be notified of the decision reached by the Office of Enrollment Services (Financial Aid) shortly after their files have been completed. No action will be taken until the candidate has been accepted by the Office of Admissions.

## Awards

### LIU Scholarships and Awards

LIU Brooklyn awards approximately \$100 million in university scholarship assistance to students each year. These scholarships and grants, which do not require repayment, are based on academic success, athletic ability, community service, artistic talent, and financial need. The campus also offers honors and departmental scholarships for specific programs of study.

In addition to university financial assistance, LIU Pharmacy provides additional aid in the form of scholarships funded through the generosity of alumni and friends. Awards are based on academic achievement and professional promise, as well as financial need. Interested students should submit a Pharmacy Scholarship Application prior to the start of each fall semester for consideration. Additional information on these scholarships, including how to apply, can be found online at [www.liu.edu/pharmacy/scholarships](http://www.liu.edu/pharmacy/scholarships).

### Federal and State Grants and Loan Programs

The federal government awards financial assistance to students who demonstrate financial need according to a variety of economic criteria as

determined by the United States Department of Education. The criteria include an individual and/or parents' income and assets, family's household size, and the number of family members attending college. Benefits from all federal programs are subject to legislative changes. Recipients of federal programs must be U.S. citizens or permanent residents. Federal financial aid programs such as the federal Pell and SEOG grant programs are limited to the first four years of undergraduate study. Federal Direct Loan program amounts also differ for the undergraduate years vs. the graduate years.

The New York State Higher Education Services Corporation (HESC) also offers a wide variety of grants, scholarships, student loans and parent loans for part-time and full-time college study. HESC also administers the Tuition Assistance Program (TAP), the nation's largest state grant program. Grants and scholarships are types of aid that do not need to be repaid. Although students apply for financial aid directly to HESC, the funds are taken into account when developing the LIU financial aid package. You must be a U.S. citizen and resident of the State of New York to be eligible for HESC awards. Students who reside outside of New York State may be eligible for grants, scholarships and loans from their home state. Contact the Federal Student Aid agency at 1-800-433-3243 or [www.federalstudentaid.ed.gov](http://www.federalstudentaid.ed.gov) for more information. A detailed listing of New York State awards can be found online at [www.hesc.com](http://www.hesc.com).

A detailed listing of federal and state programs, including Pell grants, SEOG awards, TAP, and Direct Loans, can be found online at [www.liu.edu/Brooklyn/Financial-Services/Scholarships-Grants-and-Loans/Federal-and-State-Sponsored-Grant-Programs](http://www.liu.edu/Brooklyn/Financial-Services/Scholarships-Grants-and-Loans/Federal-and-State-Sponsored-Grant-Programs).

### Veteran Benefits

LIU Brooklyn has a proud and distinguished history of serving its nation's military veterans and active duty service members. Our supportive community of staff and faculty is dedicated to seeing veterans succeed in their education, career and life. To accomplish this mission, LIU Brooklyn provides the resources needed to pursue educational opportunities while balancing the demands of life both inside and outside the classroom.

With the Post-9/11 GI Bill, education-related benefits, including funds for tuition, housing, books and supplies, are better than ever for our veterans. In addition, financial aid, scholarships and New York State tuition awards and grants may also be available to help you with costs that are not covered by your veteran benefits.

### Private Loans

If you find that you need funding beyond the limits of the Federal Direct Student Loan Program, you may wish to consider a private loan. These loans are not guaranteed by the federal government and are considered private loans. We

urge all students and parents to research any lender they are considering for this type of funding and to specifically ask a number of key questions, including:

- current interest rates
- co-signer requirements
- repayment options, both in school and out
- whether or not the loan may be sold to another provider

The university does not have a preferred lender for private loans; each student has the right to select the educational loan provider of his or her choice. However, there are a number of independent resources that can be used to evaluate and analyze alternative loan options.

If you have considered applying for a private loan, you may be required to complete the Free Application for Federal Student Aid (FAFSA) at [www.fafsa.ed.gov](http://www.fafsa.ed.gov) in order for the university to certify your loan eligibility. Alternative loans that are used to cover prior semesters may require additional information for approval, such as letters certifying indebtedness, attendance verification, official transcripts, etc. As such, when requesting funding for prior terms, be sure to reference the correct academic year on your application.

The basic process involved with securing private loans is the electronic filing of an application, institutional certification, and approval information. Generally speaking, electronic filing processing requires at least 72 hours before a lender will respond. The university will assist you in this process and will determine for you the maximum loan amount you will be allowed to borrow based on your estimated cost of attendance and pre-existing financial aid awards. The complete process normally takes 7-14 business days.

## Terms and Conditions

Awards are not finalized until all requested supporting documentation has been properly submitted and reviewed. All awards are subject to funding levels and appropriations by federal and state agencies. Many aid programs require that you be matriculated and attend LIU Brooklyn on a full-time basis. LIU reserves the right to adjust or cancel offers of financial assistance if you make changes to your FAFSA, adjust your registration status, withdraw from one or more courses, or fail to maintain good academic standing for financial aid purposes. LIU also reserves the right to change the selection criteria, deadlines, and awarding process of academic awards.

Recipients of federal and state financial aid must maintain full-time student status to receive the maximum benefits from these programs. Students who withdraw and/or drop their registration below full-time status must have their current and future financial aid eligibility re-determined. All awards from LIU Brooklyn are accompanied by a letter of stipulation detailing the terms of the award. Students are governed by the

stipulations accompanying their specific awards. Full-time status, for the purpose of scholarship and grant renewal, is defined as carrying and earning a minimum of 12 credits per semester.

Unless otherwise indicated, university assistance is for tuition charges only. Students are advised to inform LIU of any aid received from outside sources, and awards from LIU may be adjusted if such additional assistance is in excess of estimated need.

**Standards for Satisfactory Academic Progress (SAP)**

**Federal Financial Aid Programs**

Federal regulations require students to make satisfactory academic progress (SAP) toward the completion of a degree or certificate program in order to receive Title IV financial aid, which includes the Federal Pell Grant, Federal SEOG, Federal Work Study, Federal Perkins Loan and the Federal Direct Loan Programs. Satisfactory academic progress is measured qualitatively and quantitatively by two components: a student's cumulative GPA and the amount of credits they have earned relative to their year in school and enrollment status.

Satisfactory academic progress is measured annually, at the end of the spring semester, after all grades have been submitted. Students failing to meet the criteria stated below are eligible to appeal this decision if extenuating circumstances played a factor in their academic performance. Examples of such circumstances could include an illness, accident, separation or divorce, or the death of a relative. An appeal must be made in writing to the university and include an explanation of the circumstance(s) that may have adversely affected the student's ability to meet the academic requirements, and the plan or changes that have occurred which will allow them to make SAP in the future. All appeals must be accompanied by supporting documentation, such as a letter from a doctor or attorney. If an appeal is granted, the student will either be placed on probationary status for one semester during which the student must meet SAP guidelines, or must successfully adhere to an individualized academic plan that was developed for them by their academic advisor as part of their appeal. Failure to meet these criteria will result in loss of eligibility for Title IV funds.

Students wishing to receive Title IV financial aid for summer semesters may have these awards evaluated and offered prior to a determination of SAP. All students receiving summer aid will have their SAP evaluated after all spring grades have been submitted. Students not making progress will have their summer aid cancelled, and the student will be liable for all tuition and fee charges incurred unless an appeal is filed and granted as outlined above.

The criterion below outlines the progress that is required for a full time undergraduate student to be

considered in good standing:

**SAP Completion Requirements**

# Credits Attempted	# of Credits Earned
0-29	50%
30-208	67%
209 and above	80%

**SAP GPA Requirements**

Total Credits Earned	Cumulative GPA Required
0-29	1.8
30-60	1.9
60-138	2.0
139 and above	2.33

**Notes:**

- Progress standards for part-time students are prorated based upon the criteria above
- Qualifying transfer credits are counted as both attempted and earned credits but have no effect on the GPA
- Grades of W (withdrawal), UW (unofficial withdrawal), ABS (absent), INC (incomplete), and IF (incomplete fail) are counted as credits attempted but not completed, and do not affect the GPA
- Repeated classes will count only once towards credits completed. A student may receive aid for a repeated class that has been successfully completed once.
- Students may not receive federal aid for classwork that exceeds 150% of their degree requirements.
- Any departmental requirements that exceed these standards must be adhered to for the purposes of evaluating SAP.

**New York State Awards**

To receive financial aid awards from New York State, including Tuition Assistance Program (TAP) funding, students must meet the academic standing requirements established by the New York State Education Department. These requirements are different than those set forth by the federal government, and apply only to New York state awards.

The basic measures for good academic standing for New York State awards include the following:

- Pursuit of Program: A student must receive a passing or failing grade (A-F) in a certain percentage of courses each term.
- Satisfactory Academic Progress: A student must accumulate a specified number of credits and achieve a specified cumulative GPA.

The requirements for meeting these standards increase as the student progresses, and are based upon the number of state awards that the student has already received. Students failing to meet the established criteria are eligible to request a one-time waiver of the academic and/or "C" average

requirement(s) if extenuating circumstances played a factor in their academic performance. Examples of such circumstances could include an illness, accident, separation or divorce, or the death of a relative. An appeal must be made in writing to LIU and include an explanation of the circumstance(s) that may have adversely affected the student's ability to meet the academic requirements, and the plan or changes that have occurred which will allow them to make SAP in the future. All appeals must be accompanied by supporting documentation, such as a letter from a doctor or attorney. If a waiver is granted, the student will be eligible for the state award for the semester for which they were granted the waiver. The student must continue to meet the academic progress and pursuit of program requirements to receive further awards.

The charts below outline the progress that is required for a professional student to be considered in good standing:

**Baccalaureate Semester Based Program Chart (2006 Standards)**

*Applies to students first receiving aid in 2007-08 through and including 2009-10 and remedial students first receiving aid in 2007-08 and thereafter.*

**Before Being Certified for Payment:**

Semester	Minimum credits accrued	Minimum GPA
1st	0	0
2nd	3	1.1
3rd	9	1.2
4th	21	1.3
5th	33	2.0
6th	45	2.0
7th	60	2.0
8th	75	2.0
9th	90	2.0
10th	105	2.0

**Baccalaureate Semester Based Program Chart (2010 Standards)**

*Applies to non-remedial students first receiving aid in 2010-11 and thereafter.*

**Before Being Certified for Payment:**

Semester	Minimum credits accrued	Minimum GPA
1st	0	0
2nd	6	1.5
3rd	15	1.8
4th	27	1.8
5th	39	2.0
6th	51	2.0
7th	66	2.0
8th	81	2.0
9th	96	2.0
10th	111	2.0



**Notes:**

- All students must be registered for a minimum of 12 credits per semester.
- A student may not receive a NY State award for repeating a class that they have already successfully completed (i.e., the credits for a repeated class for which the student has already received a satisfactory grade will not count towards the full-time requirement).
- The standards that a student must meet are dependent upon when a student first received an award from NY state, as well as their remedial status.
- A student is placed on the chart above based upon their total TAP points received, including any award(s) received at a previous institution(s).
- To continue to receive TAP funding, a minimum number of credits must be completed each term, as well as on a cumulative basis.
- A student must maintain a minimum GPA prior to being certified for a TAP payment. This average increases as the student progresses in payment points.
- All students must have a cumulative GPA of 2.0 (a "C" average) or better after accumulating 24 or more payment points (e.g., 4 full time semesters).
- A student who is not making progress, and/or is not meeting the "C" average requirement may request a one-time waiver if extenuating circumstances affected their academic performance. A student may only receive this waiver once for NY State awards.

**GRADUATE PROGRAMS**

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LIU Pharmacy offers graduate curricula leading to the Doctor of Philosophy in Pharmaceutics (Ph.D.) degree, and the Master of Science (M.S.) degree in the following fields, as registered with the New York State Education Department: Pharmaceutics (with specializations in Industrial Pharmacy and Cosmetic Science), Pharmacology/Toxicology, and Drug Regulatory Affairs.

## GRADUATE CURRICULUM

### Division of Pharmaceutical Sciences

All graduate programs offered through LIU Pharmacy's Division of Pharmaceutical Sciences.

*Division Director*

**Rutesh Dave, Ph.D.**

Telephone: 718-488-1101

### Doctor of Philosophy in Pharmaceutics

*Program Director*

**David R. Taft, Ph.D.**

Telephone: 718-488-1263

#### Program Description

Students develop an ability to do independent research and are much sought after in industry and academia. Graduates with a Ph.D., depending on their specialization, might go into industry or accept a position as a post-doc in various institutions across the country. Student may pursue work in the following:

- Formulation and Analytical Scientist
- Pharmacokinetics
- Contract Manufacturing
- Post-Doc and Academics

#### Program Mission

The doctoral program in Pharmaceutics at LIU is designed to prepare students to meet the challenges and the current needs of scientists engaged in the pharmaceutical sciences and drug development process. This program offers a blend of didactic and elective courses in the basic material sciences and mathematics, drug delivery, biopharmaceutics/pharmacokinetics, and other areas related to academic and industrial research. After completing a broad-based core of fundamental courses, all students are required to perform original research in a specialized area, culminating in a dissertation. The program is designed so Ph.D. students have considerable flexibility in selecting areas of research for the Ph.D. project.

#### Program Goals and Objectives

**Goal 1:** Design, conduct and defend original research in one's field of expertise.

*1.1* Integrate advanced knowledge and concepts in pharmaceutical sciences to identify a research problem, and to develop an appropriate hypothesis and design experiments to study the problem.

*1.2* Demonstrate technical skills involving computer, laboratory, and other measurements necessary to be a productive scientist.

*1.3* Analyze experimental data and compare results to theoretical predictions.

*1.4* Effectively disseminate and defend one's research both orally and in writing.

**Goal 2:** Apply analytical and critical thinking in reviewing scientific literature and evaluating research findings.

*2.1* Read, accurately interpret, and critically analyze procedures (including error identification), results and conclusions from discipline-specific published research.

*2.2* Identify potential errors in and limitations of key research studies related to one's research focus, including studies conducted by the student.

#### Requirements for the Pharmaceutics Ph.D. Degree.

Students must complete a minimum of 69 credits of coursework including a minimum of four semesters of PHS 998 Ph.D. Research and Thesis, submit a satisfactory dissertation proposal, submit a satisfactory written dissertation and successfully defend (orally) their dissertation. For students starting the Ph.D. program beginning Fall 2014 and after a written comprehensive examination is required after completing the nine courses below indicated with an asterisk. Students must successfully pass this examination to qualify for continuation in the Ph.D. program.

#### Pharmaceutics Ph.D. Course Requirements All courses listed below are required.

PHS	602	Pharmaceutical Regulatory Overview*	3.00
PHS	931	Advanced Physical Pharmacy I*	3.00
PHS	932	Advanced Physical Pharmacy II*	3.00
PHS	934	Principles of Industrial Pharmacy I*	3.00
PHS	935	Principles of Industrial Pharmacy II*	3.00
MAT	610	Pharmaceutical Calculus*	3.00
PHS	972	Methods of Pharmaceutical Analysis*	3.00
PHS	987	Advanced Biopharmaceutics and Pharmacokinetics*	3.00
PHA	010	Biostatistics*	3.00
CHE	621	Advanced Organic Chemistry I	3.00
PHS	990	Pharmacokinetic Modeling	3.00
PHS	936	Dosage Form Design	3.00
PHS	983	Polymer Science	3.00

PHS	997	Solid State Characterization	3.00
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#### Research

**Students must register for a minimum of four semesters of PHS 998 (Minimum total of 12 credits)**

PHS	998	Ph.D. Research & Thesis	3.00
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**Students may choose from the elective courses listed below. Additional courses may be substituted for elective credit upon the approval of the program advisor.**

CHM	581	Computational Chemistry	3.00
CHM	606	Advanced Physical Chemistry	3.00
PHS	070	Special Problems	3.00
PHS	769	Transdermal Drug Delivery	3.00
PHS	881	Thermal Physics and Applications to the Chemistry of Pharmaceutical Systems II	3.00
PHS	886	Computational Methods of Data Analysis	3.00
PHS	931	Advanced Physical Pharmacy I (Required beginning Fall 2014 and after)	3.00
PHS	932	Advanced Physical Pharmacy II (Required beginning Fall 2014 and after)	3.00
PHS	934	Principles of Industrial Pharmacy I (Required beginning Fall 2014 and after)	3.00
PHS	935	Principles of Industrial Pharmacy II (Required beginning Fall 2014 and after)	3.00
PHS	936	Dosage Form Design (Required beginning Fall 2014 and after)	3.00
PHS	937	Pharmaceutical Engineering	3.00
PHS	950	Cosmetic/Dermatological Formulations and Technology I	3.00
PHS	951	Cosmetic/Dermatological Formulations and Technology II	3.00
PHS	955	Integrated Dosage Form Development	3.00
PHS	958	Aerosol Science and Technology	3.00
PHS	960	Properties/Applications of Cosmetic and Pharmaceutical Raw Materials	3.00

PHS 982	Science and Technology of Controlled Release Systems	3.00
PHS 989	Special Topics in Pharmaceutics	3.00
PHS 995	Transport Phenomena and Drug Delivery II	3.00

## Master of Science in Pharmaceutics

### Program Director

David R. Taft, Ph.D.

Telephone: 718-488-1263

### Program Description

Graduates from this program are in great demand and fill vital positions in various pharmaceutical and cosmetic industries. They are sought after by pharmaceutical and cosmetic companies, contract research organizations, OTC companies and various analytical labs. Their strong background makes them ideal candidates to fulfill the growing demands in these industries. Employment fields include the following

- Formulation
- Pharmacokinetics
- Manufacturing
- Analytical
- Quality Assurance
- Quality Control

### Specialization in Industrial Pharmacy

#### Program Mission

The mission of the Master of Science in Pharmaceutics with specialization in Industrial Pharmacy is to uniquely prepare students for entry into the pharmaceutical industry and for entry to the Ph.D. programs in pharmaceutical sciences and other related fields. Graduates of the program will be highly sought after by the global pharmaceutical industry to support research, development and manufacturing operations. Alumni should become positioned to assume leadership positions within the pharmaceutical industry as well as within academia thus further elevating the stature of the Division of Pharmaceutical Sciences, LIU Pharmacy and of the university as a whole.

#### Program Goals and Objectives

**Goal 1:** Demonstrate acquisition of knowledge of fundamental concepts in pharmaceutics/industrial pharmacy.

- 1.1 List and explain physical and chemical properties of solvents and solutes that affect solubility, stability, and other biopharmaceutic properties/behaviors used in the development of dosage forms.

1.2 Describe the important factors necessary for the design, manufacture and evaluation of various dosage forms and other drug delivery systems.

1.3 Develop, validate and apply different instrumental analytical techniques toward the analysis of drug substances in various dosage forms.

1.4 Identify and explain the principles that govern absorption, distribution, metabolism and excretion of drug substances, and the factors that influence these processes.

**Goal 2:** Integrate advanced knowledge and concepts in pharmaceutical sciences.

2.1 Demonstrate the ability to interpret and analyze data.

2.2 Design, manufacture and evaluate dosage forms and other drug delivery systems.

2.3 Characterize and evaluate the physicochemical properties of pharmaceutical materials.

**Goal 3:** Effectively communicate scientific information both orally and in writing to inform and educate professional and scientific peers.

3.1 Retrieve, analyze, and interpret the scientific literature to provide information for dissemination orally or in writing.

3.2 Verbally deliver information in an organized, persuasive and logical manner using supportive documentation and visual aids.

3.3 Create documents that are technical, analytical, relevant in content and well organized.

**Goal 4:** Develop group dynamic and teamwork abilities.

4.1 Demonstrate one's personal contributions to group projects or assignments.

4.2 Summarize information gleaned from group experiences and communicate findings.

### Specialization in Cosmetic Science

#### Program Mission

The mission of the Master of Science in Pharmaceutics with specialization in Cosmetic Science is to uniquely prepare students for entry into the cosmetics industry and other related fields. Graduates of the program will be highly sought after by the global cosmetics industry to support research, development and manufacturing operations in the areas of chemistry, cosmetic/dermatological formulations technology, product evaluations and safety. Alumni should become positioned to assume leadership positions within the cosmetics industry.

### Program Goals and Objectives

**Goal 1:** Develop the expertise and skills necessary for the design, manufacture and evaluation of various cosmetic and dermatological products.

1.1 Perform calculations necessary to scale-up a dermatological formulation;

1.2 List the challenges involved in formulation and preparation of dermatological products;

1.3 Design set of experiments necessary to develop a dermatological product;

1.4 Evaluate final dermatological product based on in-vitro experiments;

1.5 Identify tests necessary to conduct in-vitro testing of dermatological products.

**Goal 2:** Demonstrate ability to develop, validate and apply different instrumental analytical techniques to analyze various cosmetic and dermatological products.

2.1 Describe how to validate analytical methods;

2.2 Be able to select appropriate column for HPLC analysis;

2.3 Perform calculations necessary to determine the concentration of an analyte in given sample;

2.4 Select the appropriate method for quantitative measurement of analyte concentration.

**Goal 3:** Use physical chemical principles involved in development of dermatological dosage forms.

3.1 Identify appropriate ingredients to formulate a cosmetic dosage form;

3.2 Demonstrate the ability to conduct stability testing of different dermatological formulations;

3.3 Apply physicochemical principles to develop dermatological products;

3.4 Utilize rheological parameters for packaging of dermatological formulations;

3.5 Understand principles underlying behavior of various types of surfactants;

3.6 Understand properties of preservatives and their application.

**Goal 4:** Develop the oral and written communication skills necessary to inform and educate professional and scientific peers.

4.1 Demonstrate the ability to write scientific documents;

4.2 Demonstrate ability to present scientific findings orally.

**M.S. Pharmaceutics - Requirements**

[Program Code: 77047]

**Requirements for the Specialization in Industrial Pharmacy:**

Students taking the Non-Thesis Option must complete 36 credits of coursework and pass the written comprehensive examination. Students taking the Thesis Option must complete 36 credits of coursework of which 6 credits are for PHS 080 Research and Thesis, pass the written comprehensive examination, submit a satisfactory thesis proposal, submit a satisfactory written thesis, and successfully defend (orally) their written thesis.

**The following courses are required for the Specialization in Industrial Pharmacy:**

PHS	020	Pharmaceutical Regulatory Overview	3.00
PHS	931	Advanced Physical Pharmacy I	3.00
PHS	932	Advanced Physical Pharmacy II	3.00
PHS	934	Principles of Industrial Pharmacy I	3.00
PHS	935	Principles of Industrial Pharmacy II	3.00
MAT	610	Differential Equations I	3.00
PHS	972	Methods of Pharmaceutical Analysis	3.00
PHS	987	Advanced Biopharmaceutics/Pharmacokinetics	3.00
PHA	010	Biostatistics	3.00

**Students selecting the Thesis Option must register for the following course:**

PHS	80	Research And Thesis	6.00
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**The following courses may be selected from as electives for the Specialization in Industrial Pharmacy:**

PHA	010	Biostatistics (Required Fall 2014 and after)	3.00
PHS	070	Special Projects	3.00
PHS	702	Physical Chemistry II	3.00
PHS	769	Transdermal Drug Delivery	3.00
PHS	936	Dosage Form Design	3.00
PHS	937	Pharmaceutical Engineering	3.00
PHS	950	Dermatological Formulations Technology I	3.00
PHS	951	Dermatological Formulations Technology II	3.00
PHS	958	Aerosol Science and Technology	3.00

PHS	960	Properties/Applications of Cosmetic and Pharmaceutical Raw Materials	3.00
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**Requirements for the Specialization in Cosmetic Science:**

Students taking the Non-Thesis Option must complete 33 credits of coursework and pass the written comprehensive examination. Students taking the Thesis Option must complete 30 credits of coursework of which 6 credits are for PHS 060 Research and Thesis, submit a satisfactory thesis proposal, submit a satisfactory written thesis, and successfully defend (orally) their written thesis.

**The following courses are required for the Specialization in Cosmetic Science:**

PHA	010	Biostatistics	3.00
PHS	020	Seminar In Pharmaceutics	3.00
PHS	931	Advanced Physical Pharmacy I	3.00
PHS	950	Cosmetic/Dermatological Formulations and Technology I	3.00
PHS	951	Cosmetic/Dermatological Formulations and Technology II	3.00
PHS	952	Cosmetic/Dermatological Formulations and Technology Laboratory	3.00
PHS	960	Properties/Applications of Cosmetic and Pharmaceutical Raw Materials	3.00
PHS	972	Methods of Pharmaceutical Analysis	3.00

**Students selecting the Thesis Option must register for the following course in two consecutive semesters:**

PHS	060	Research And Thesis	3.00
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**The following courses may be selected from as electives for the Specialization in Cosmetic Science:**

PHS	070	Special Projects	3.00
PHS	702	Physical Chemistry II	3.00
PHS	769	Transdermal Drug Delivery	3.00
PHS	932	Advanced Physical Pharmacy II	3.00
PHS	936	Dosage Form Design	3.00
PHS	937	Pharmaceutical Engineering	3.00
PHS	958	Aerosol Science and Technology	3.00

**Master of Science in Pharmacology / Toxicology**

Program Director

**Vikas Sehdev, Ph.D.**

Telephone: 718-488-1447

**Program Description**

Career opportunities and employment may include academic departments involved in research, development, and teaching. Rewarding careers are also possible in pharmaceutical companies, government laboratories and agencies including the Centers for Disease Control, The Food and Drug Administration, the Department of Agriculture, the Department of Defense and NASA. Opportunities also exist in areas involving the development of public policy, investment advising, patent law, and scientific writing and editing.

There is excellent potential for rapid advancement in this field due to the importance of the discipline to the drug industry, regulatory agencies, and to the general public.

Graduates of the program have either joined academic departments by securing doctoral fellowships in prestigious laboratories, or obtained jobs in industry. Others have used their degree to facilitate entry into medical and pharmacy schools.

Employment opportunities may include:

- Designing and performing laboratory experiments
- Managing research projects
- Reviewing scientific documents and making recommendations
- Writing scientific communications and papers for publication and non-publication purposes
- Oral communication of scientific findings

In addition to strong scientific background and analytical skills, the successful candidate will also need to possess excellent interpersonal and communication skills and high ethical standards.

**Program Mission**

LIU Pharmacy's M.S. in Pharmacology and Toxicology degree program prepares student lifelong learners with the knowledge and abilities required for competitive technical positions in pharmacological research and testing, for participating in clinical trials, and for performing toxicological reviews and assessments in the pharmaceutical and biotechnology industries as well as in academic and governmental research laboratories. Additionally, graduates are well-positioned to continue their studies in Ph.D. programs in pharmacology and other biomedical sciences, while other graduates may find the program ideal for improving their credentials toward gaining admission to medical school or other health professional programs.

Students will: a) demonstrate a mastery of a broad didactic foundation in pharmacology and

toxicology; b) develop research skills through exposure to significant research opportunities and experiences during which they translate their knowledge base into practice; and c) utilize professional skills such as statistical analysis, written and verbal communication. These abilities will be acquired through specific coursework, labs, seminars, and other professional and personal development offered during the course of study.

**Program Goals and Outcomes**

At the end of the program students will:

**Goal 1:** Apply the knowledge of mechanisms of action of drugs and toxicants to discuss the clinical profile of pharmacological agents.

1.1. Discuss the mechanisms of action of selected drugs/toxicants at the molecular, cellular, organ system, and whole body level;

1.2. Discuss the toxicity of drugs based on the physiology and the pathophysiology of the disease;

1.3. Assess and evaluate therapeutic and/or toxic outcomes based on the knowledge of drugs/toxicants accessibility to target sites.

**Goal 2:** Apply the knowledge of pharmacokinetic and pharmacodynamic processes and principles to discuss therapeutic and toxic outcomes of pharmacological agents.

2.1. Apply the pharmacokinetic processes to discuss the absorption, distribution, metabolism, and excretion of drugs/toxicants;

2.2. Apply the pharmacodynamic principles to discuss a drug's affinity, potency, and efficacy;

2.3. Evaluate the impact of pharmacokinetic processes on the action of drugs/toxicants and their clinical/toxic outcomes;

2.4. Use the pharmacodynamic principles to discuss the mechanism of action of drugs/toxicants and clinical/toxic outcomes;

2.5. Use appropriate concepts, principles, and analysis skills to address drug efficacy/toxicity queries;

2.6. Discuss the clinical uses and the safety profile of various classes of drugs;

2.7. Solicit appropriate information required to address drug efficacy/toxicity queries.

**Goal 3:** Develop oral and written communication skills necessary to disseminate scientific information.

3.1. Orally communicate sound evaluations of discipline-specific, peer-reviewed papers;

3.2. Demonstrate verbal communication skills during seminar presentations and thesis defense;

3.3. Demonstrate the ability to write scientific reports and evaluations in the area of study;

3.4. Develop proficiency in writing abstracts;

3.5. Demonstrate the ability to write a research project;

3.6. Write a thesis dissertation based on data obtained during laboratory training and investigation.

**Goal 4:** Retrieve, analyze, interpret, and critique scientific literature in pharmacology and toxicology.

4.1. Conduct a literature review independently using appropriate keywords, databases, and select pharmacology and toxicology peer-reviewed papers that pertain to a specific problem;

4.2. Analyze, interpret, and critique the scientific literature with regard to study design, data interpretation, and appropriateness of conclusions.

**Goal 5:** Develop the skills needed to perform analytical and experimental techniques, and research methodology.

5.1. Develop an experimental technique based on one's own research area;

5.2. Design experiments using pharmacological and toxicological tools to investigate a specific research area;

5.3. Develop and validate research methodologies to investigate specific research questions.

**Goal 6:** Identify research opportunities, develop hypotheses and design research projects, and execute independent research. (Thesis option students).

6.1. Demonstrate the ability to carry out experiments in a laboratory setting;

6.2. Demonstrate the ability to design experimental protocols;

6.3. Statistically analyze and generate graphics of the data and interpret experimental findings;

6.4. Demonstrate the ability to conduct a literature search for a specific area of investigation;

6.5. Identify areas of unsolved investigation; develop hypotheses and research questions.

*Undergraduate Prerequisites:*

**Biochemistry, Physiology and Pharmacology**

**M.S. in Pharmacology/Toxicology - Requirements**

[Program Code: 26233]

Students taking the Non-Thesis Option must complete 36 credits of coursework and pass the written comprehensive examination. Students taking the Thesis Option must complete 33 credits of coursework of which 6 credits are in PTM 060 Research and Thesis, submit a satisfactory thesis proposal, submit a satisfactory written thesis, and successfully defend (orally) their written thesis.

**The following courses are required for the Master of Science in Pharmacology/Toxicology**

PHA	010	Biostatistics	3.00
PTM	020	Seminar In Pharmacology/Toxicology	3.00
PTM	704	Autonomic Pharmacology	3.00
PTM	705	Biochemical Pharmacology	3.00
PTM	709	Advanced Pharmacology	3.00
PTM	802	Experimental Methods in Pharmacology and Toxicology	3.00
PTM	910	Toxicology of Drugs and Chemicals	3.00

**The following courses may be selected from as electives for the Master of Science in Pharmacology/Toxicology:**

(\*Thesis Option students must take six (6) credits of PTM 060 Research and Thesis)

PTM	060	Research and Thesis	3.00
PTM	070	Special Projects	3.00
PTM	708	Cardiovascular Pharmacology	3.00
PTM	711	Current Technologies in Pharmaceutical Research and Development	3.00
PTM	804	Inborn Errors of Metabolism	3.00
PTM	905	Principles of Immunotherapy	3.00
PTM	907	Psychopharmacology	3.00
PTM	917	Molecular Toxicology	3.00
PTM	920	Molecular Pharmacology	3.00
PTM	925	Pharmacogenomics	3.00
PTM	938	Stem Cells and Regenerative Medicine	3.00

## Master of Science in Drug Regulatory Affairs

### Program Director

Jun-Yen Yeh, Ph.D.

Telephone: 718-780-4048

### Program Description

With pressure to contain the cost and time it takes to create new products and bring them to market, professionals with expertise in regulatory affairs are highly sought after by pharmaceutical companies and medical device manufacturers, as well as by hospitals, health maintenance organizations (HMOs) and a range of other health care oriented organizations as well. The expertise of a DRA professional may be used in areas such as clinical trials, manufacturing, compliance, patenting, sales and marketing, IT, finance and scientific writing.

Employment opportunities include:

- Collecting data and preparing submissions to regulatory agencies
- Assisting in the development of procedures to ensure regulatory compliance
- Interfacing with regulatory agencies
- Facilitating identification and resolution of scientific and regulatory issues with regulatory agencies
- Remaining current with federal and international regulations and communicating that information within the organization, including the creation of training materials
- Participating in the development of new products and services
- Participating in quality audits

In addition to a strong background in pharmaceutical science and regulatory affairs, a successful DRA professional should have excellent interpersonal and communication skills, high ethical standards, attention to detail and strong organizational skills.

### Program Mission

The mission of the Master of Science program in Drug Regulatory Affairs is to prepare students to become lifelong learners and leaders in a variety of settings including biotechnology, medical devices, pharmaceuticals, consulting arena, and liaise with government and regulatory agencies worldwide. Students will: a) demonstrate a mastery of a broad didactic foundation in regulatory affairs gained in advanced coursework; b) develop strong skills through exposure to significant regulatory projects and case studies during which they translate their knowledge into practice; and c) utilize professional skills such as statistical analysis, knowledge of regulatory guidance documents, as well as written and verbal communication skills.

These abilities will be acquired through specific coursework and seminars and other professional

and personal development offered during the course of study.

### Program Goals and Objectives

**Goal 1:** Demonstrate an understanding of the role of a medical products regulatory affairs specialist and the dynamic nature of the regulatory field.

1.1 Evaluate real and/or simulated regulatory submissions for appropriateness of the submission to the regulatory requirements of product design, manufacturing, testing, and post-market surveillance strategies.

1.2 Examine real or simulated regulatory submissions to judge adherence to prescribed guidance documents and principles of responsible clinical research.

1.3 Identify the differences between patents, trademarks, and trade secrets as they relate to regulatory and marketing strategy.

**Goal 2:** Identify and utilize the laws and regulations that apply to the development, testing, and production of new medical products, including medical devices, In-Vitro Diagnostics (IVDs, pharmaceuticals, biotechnology-derived therapeutics, and biologics.

2.1 Assess current U.S. –Food and Drug Administration (FDA) regulations that focus on drugs and medical devices and their impact on regulatory submissions such as New Drug Applications (NDA), Abbreviated NDAs, Investigational New Drug (IND) Applications, 510k, and Pre-Market Authorizations PMAs.

2.2 Delineate specific regulations in the Code of Federal Regulations (CFR) that address patient safety and their impact on product development.

**Goal 3:** Identify a specific regulatory issue for either a drug or device and be able to justify an appropriate position or strategy through presentation and written skills that permits students to acquire analytic and reasoning skills along with effective communication skills.

3.1 Strategically build various sections of a 510k submission for a Class II medical device given baseline data.

3.2 Demonstrate the ability to investigate case studies related to various regulatory topics (e.g. regulatory submissions, product defect, clinical trials and quality assurance strategies). This should include; identification of the issue, research of the topic, and development of a report summarizing the findings.

3.3 Demonstrate the ability to construct a Power Point presentation on a topic related to a current regulatory issue. This presentation should have relevant content and appropriate information that addresses the selected topic adequately.

3.4 Demonstrate the ability to construct a Power Point presentation on a topic related to a current regulatory issue and communicate the findings effectively to an audience.

**Goal 4:** Demonstrate the ability to develop personal and professional skills in the field of regulatory affairs.

4.1 Identify current issues within the field of regulatory affairs and develop written responses or papers suitable for peer review.

4.2 Identify a regulatory professional in the industry and discuss with them about their roles and responsibilities as a regulatory professional. Based on such discussions develop a hypothetical career pathway for yourself in outline format.

## M.S. in Drug Regulatory Affairs - Requirements

[Program Code: 90328]

Students taking the Non-Thesis Option must complete 33 credits of coursework and pass the written comprehensive examination. Students taking the Thesis Option must complete 33 credits of coursework of which 3 credits are in PHA 050 Research Methodology, 6 credits are in PHA 060 Research and Thesis, submit a satisfactory thesis proposal, submit a satisfactory written thesis, and successfully defend (orally) their written thesis.

### The following courses are required for the Specialization in Drug Regulatory Affairs:

PHA	010	Biostatistics	3.00
PHA	603	Drug Regulatory Affairs	3.00
PHA	651	Pharmaceutical Labeling, Advertising and Promotion	3.00
PHA	653	Seminar in Social and Administrative Sciences	3.00
PHA	654	FDA Regulation of Over-the-Counter Drugs, Medical Devices and Dietary Supplements	3.00
PHA	657	Principles and Practices of Regulatory Compliance and Enforcement	3.00
PHA	660	Mechanics of Preparing INDs and NDAs	3.00
PHA	661	The American Pharmaceutical Industry	3.00

### The following courses may be selected from as electives for the Specialization in Drug Regulatory Affairs:

(\*Thesis Option students must take PHA 050 and six (6) units of PHA 060.)

PHA	050	Research Methodology	3.00
PHA	060	Research And Thesis	3.00
PHA	070	Special Problems	3.00
PHA	604	Pharmacoeconomics	3.00

PHA	617	Pharmaceutical Laws and Enforcement	3.00
PHA	618	Patent Law and the Pharmaceutical Industry	3.00
PHA	645	Internship in Drug Regulatory Affairs	3.00
PHA	655	Chemistry, Manufacturing and Controls (CMC) Regulatory Affairs	3.00
PHA	658	International Drug Regulatory Affairs	3.00
PHA	665	Healthcare Data Management and Analysis	3.00
PHS	984	Clinical Trials	3.00



## GRADUATE COURSE DESCRIPTIONS

Course schedules are printed every semester. The listings below are tentative. They are based on past history and are subject to change.

### Doctor of Philosophy Courses

#### PHS 021 Seminar In Pharmaceutics

(For Ph.D. Students) A presentation and analysis of recent publications and developments in pharmaceutics. The students are expected to make presentations and/or write reports on specific topics. Outstanding scientists may be involved from time to time. This course is open for the Ph.D. level student. M.S. candidates may be allowed with permission of the Program Director. Ph.D. candidates must register for three consecutive semesters and must attend and participate throughout their studies. Pass-Fail only.

*Credits: 1*

*Every Semester*

#### PHS 602 Pharmaceutical Regulatory Overview

This course will provide a clear understanding of how new chemical entities (NME) emerge from drug discovery. When and how absorption, distribution, metabolism, and excretion (ADME) studies in discovery and exploratory development stages of drugs are conducted to assess the metabolism and excretion of a drug in animals and human. Outline the physicochemical characterization and compatibility of new molecule. First-in-human (FIH) studies in the drug development process and typically aim to characterize a compound's pharmacokinetics, potential effective concentration or dose, and safety or tolerability margins. A look at different phases of clinical trials for an understanding of the different purpose and questions these are trying to answer. Overview of submission requirements and the Food and Drug Administration's (FDA) review process. Intellectual property (IP) protection and market exclusivities to reward innovation, related legislation and ongoing issues will be discussed. Development and approval of generic versions of the new drugs and their impact on the industry will be reviewed.

*Credits: 3*

*Annually*

#### PHS 880 Thermal Physics and Applications to the Chemistry of Pharmaceutical Systems I

The first in a series of two elective courses intended for Ph.D. students. These courses offer an integrated treatment of the theory of energetic processes and applications that are relevant to pharmaceutical science. The first semester will develop equilibrium macroscopic and statistical thermodynamics, and introduce the concepts on nonequilibrium thermodynamics. The Second semester will more fully develop the basic theory of

nonequilibrium thermodynamics and the thermodynamics of processes. Applications will be introduced throughout the course and include colligative properties of solutions, Debye-Huckel theory, phase changes and thermodynamic stability, chemical equilibrium and reactions, surface effects, adsorption, polymer chain statistics, Flory-Huggins theory, and thermal analysis.

*The pre-requisites of PHS 701, 702 and 991 are required.*

*Credits: 3*

*Every Fall*

#### PHS 881 Thermal Physics and Applications to the Chemistry of Pharmaceutical Systems II

(The second course in a two-semester sequence.)

These are elective courses intended for Ph.D. students. They offer an integrated treatment of the theory of energetic processes and applications that are relevant to pharmaceutical science. The first semester will develop equilibrium macroscopic and statistical thermodynamics, and introduce the concepts on nonequilibrium thermodynamics. The Second semester will more fully develop the basic theory of nonequilibrium thermodynamics and the thermodynamics of processes. Applications will be introduced throughout the course and include colligative properties of solutions, Debye-Huckel theory, phase changes and thermodynamic stability, chemical equilibrium and reactions, surface effects, adsorption, polymer chain statistics, Flory-Huggins theory, and thermal analysis.

*The pre-requisite of PHS 880 and 992 are required.*

*Credits: 3*

*Every Spring*

#### PHS 886 Computational Methods of Data Analysis

This is an elective course intended for Ph.D. students. The course offers an integrated treatment of the methods of analyzing data using the equations derived from physical models. Topics include elementary statistics review, regression methods, analysis of errors, and computational methods. Special consideration will be given to methods of transforming equations and/or data into forms most useful for data analysis, special functions (error function, Bessel functions, etc.), and special problems that can arise with various methodologies. Many of the examples and exercises will be taken from probability theory and statistics, so this course will also serve as a primer in statistics.

*The pre-requisites of PHS 701 and 993 are required.*

*Credits: 3*

*Every Semester*

#### PHS 887 Pharmacokinetic / Pharmacodynamic Modeling and Simulation

There is a growing need for scientists trained in pharmacokinetic modeling and simulation. This is an elective course for students in the Ph.D. program in Pharmaceutics. The objectives of the course are: To provide an overview of the role of

pharmacokinetic/pharmacodynamic (PK/PD) modeling and simulation in the drug development process, to give a graduate level introduction to the field of Pharmacometrics and to demonstrate the applications of Population PK/PD modeling and simulation using examples of biomarkers and clinical endpoints in various therapeutic areas such as CNS, cardiovascular, and infectious diseases. The course will balance theory and "hands on" training and will be a combination of didactic lectures, hands on exercises and larger M&S projects conducted by the students.

*The pre-requisite of PHS 987 and 990 are required.*

*Credits: 3*

*On Occasion*

#### PHS 901 Basic Pharmaceutics

(Open to foreign students and non-pharmacy majors) An introduction to basic pharmaceutical principles associated with pharmaceutical dosage forms. Discussions will focus on factors affecting dosage form design, manufacturing of different dosage forms, biopharmaceutics, pharmacokinetics, drug stability, FDA approvals and recalls, so that the student can obtain the knowledge needed to succeed in the M.S. and Ph.D. curricula. Waiver may be authorized by the division only.

*Credits: 3*

*Every Fall*

#### PHS 983 Polymer Science

Polymers are widely used in the pharmaceutical, finding applications as tablet excipients, membranes, and carriers for drugs. The properties of polymers are of great importance in drug delivery in many forms, including solid, melt and in solutions. In this course, the physical chemistry and material properties of polymers are studied, with emphasis on pharmaceutical applications and current areas of intense research.

*Credits: 3*

*Annually*

#### PHS 987 Advanced Biopharmaceutics and Pharmacokinetics

Biopharmaceutics is the study of the relationship between the physical and chemical factors of a drug in a dosage form and the resultant impact on the rate and extent of drug absorption and, ultimately, the pharmacological response observed after its administration. Pharmacokinetics concerns the mathematical representation of drug absorption, distribution, metabolism and excretion. In this course, the principles and theories of biopharmaceutics and pharmacokinetics will be discussed, with emphasis on the various analytical tools to characterize drug disposition in vivo. The relationship between pharmacokinetics and pharmacodynamics will also be presented. The material mastered in this course will be used to develop and test mathematical models of drug disposition in PHS 990 (Mathematical Modeling).

*Credits: 3*

*On Occasion*

**PHS 989 Special Topics in Pharmaceutics**

Special topics in pharmaceutics that are of current interest.

Credits: 3

On Occasion

**PHS 990 Mathematical Modeling**

This course involves application of the pharmacokinetic principles presented in PHS 986 (Advanced Biopharmaceutics and Pharmacokinetics) to develop mathematical models which describe drug absorption, distribution, metabolism and excretion, with emphasis upon computer "fitting" of pharmacokinetic and pharmacokinetic-pharmacodynamic models to characterize the disposition of a compound in biological systems.

The pre-requisite of PHS 987 is required.

Credits: 3

On Occasion

**PHS 991 Solubility and Complex Equilibria**

The application of physicochemical principles to the study of complex equilibria, including the use of thermodynamics and mathematics to delineate the factors involved.

Credits: 3

On Occasion

**PHS 992 Transport Phenomena and Drug Delivery I**

The application of the laws and mathematics of diffusion to dissolution, membrane transport and release of drugs from dosage forms.

The pre-requisites of PHS 701 and MTH 611 are required.

Credits: 3

On Occasion

**PHS 993 Kinetics and Mechanisms of Drug Degradation**

A study of the kinetics and mechanisms of drug degradation in the solid and liquid state.

The pre-requisite of PHS 701 is required. The co-requisite of MTH 610 is required.

Credits: 3

On Occasion

**PHS 994 Drug Stabilization**

A study of drug degradation in multiphasic systems of their use in stabilizing labile drugs.

The pre-requisite of PHS 993 is required.

Credits: 3

On Occasion

**PHS 995 Transport Phenomena and Drug Delivery II**

This is an upper-level elective course intended for senior Ph.D. students that builds on the required course PHS 992 (Transport Phenomena and Drug Delivery I). The course offers a more advanced treatment of the physical and theoretical foundations of transport theory, and numerous applications in areas of current research, especially as related to pharmaceutical systems. The main

emphasis is on mass transport, but heat and momentum transport will also be included. The necessary mathematics will be developed, as needed. Methods of data analysis and computational methods will be included as an integral part of the course.

The pre-requisite of PHS 992 is required.

Credits: 3

On Occasion

**PHS 996 Interfacial Phenomena**

The application of physicochemical principles to the study of interfacial phenomena. The use of thermodynamics, kinetics and mathematics will be emphasized with applications to pharmaceutical systems, when possible.

Credits: 3

On Occasion

**PHS 997 Solid State Characterization**

Substantial development has taken place in the last decade in terms of emerging technology in the field of analytical chemistry. As a graduate student it is important to keep abreast of these technologies and understand the underlying principles behind the techniques and technologies. This course will help students develop the ability to solve theoretical problems and help them identify relevant techniques to obtain meaningful data. Together with case studies and examples, this course will help graduate students to think independently to solve problems related to solid-state characterization.

Credits: 3

Annually

**PHS 998 Ph.D. Research & Thesis**

Each Ph.D. candidate will conduct Ph.D. thesis research under the guidance of a committee whose chair will be the candidate's major professor. The enrollment and fee for this course registration will be repeated for a minimum of four semesters, and until the dissertation is completed.

Credits: 3

Every Semester

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**Master of Science Courses**

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**Pharmaceutics, Industrial Pharmacy, and Cosmetic Science**

**PHS 020 Seminar In Pharmaceutics**

(For M.S. Students) A presentation and analysis of recent developments in industrial pharmacy and pharmaceutics. Students are expected to present oral and written reports on a particular subject in consultation with the instructor in charge. May be repeated for credit.

The following pre-requisites are required: Industrial Pharmacy=PHS 701, 901, 931, 934 & 972;

Cosmetic Science=PHA 010, PHS 931, 950, 951, 960 and 972.

Credits: 3

Every Semester

**PHS 060 Research And Thesis**

(For M.S. students starting prior to Fall 2014)

Individual research in the various areas of specialization. Students doing the thesis option must register at least twice for this course. Pass-Fail only.

Credits: 3

Every Semester

**PHS 070 Special Problems**

Laboratory, fieldwork or library research in the various areas of specialization. Pass-Fail only.

Permission of the instructor required.

Credits: 3

Every Semester

**PHS 701 Physical Chemistry I**

The emphasis will be on chemical thermodynamics, from fundamental principles to applications in chemical equilibrium, including the concept of activity in non-ideal systems, and electrochemistry of the pH electrode and other ion selective electrodes.

Credits: 3

Every Fall

**PHS 702 Physical Chemistry II**

The emphasis of this course is on chemical kinetics, from experimental measurement of rate processes to activation theory and enzyme kinetics. Steady state activation theory will be included.

The pre-requisite of PHS 701 is required.

Credits: 3

Every Spring

**PHS 769 Transdermal Drug Delivery**

Today's pharmaceutical scientist, regardless of their area of practice (R & D, manufacturing, etc.) must have a basic knowledge of drug delivery from all dosage forms. Therefore, this course is intended to train the pharmaceutical scientist in preparing a transdermal dosage form capable of delivering the active ingredient to the blood circulation through the skin in quantities sufficient to product a therapeutic effect. Two lecture hours and three laboratory hours.

Credits: 3

On Occasion

**PHS 931 Advanced Physical Pharmacy I**

A systematic study of the application of physico-chemical principles to the pharmaceutical and cosmetic sciences. Topics include complexation, colloids, interfacial phenomena, dissolution theory, suspensions, micrometrics and rheology.

Credits: 3

Every Semester

**PHS 932 Advanced Physical Pharmacy II**

A systematic study of the application of physico-chemical principles to the pharmaceutical and cosmetic sciences. Topics include complexation, colloids, interfacial phenomena, dissolution theory,

suspensions, micrometrics and rheology.

*The pre-requisite of PHS 931 is required.*

*Credits: 3*

*Every Semester*

#### **PHS 934 Principles of Industrial Pharmacy I**

A study of methods used to formulate, manufacture and stability-test various dosage forms including tablets, ointments, creams, capsules, suspensions, sterile products, etc. The different techniques used to formulate dosage forms possessing unique properties such as sustained or delayed release will also be covered.

*Credits: 3*

*Every Fall*

#### **PHS 935 Principles of Industrial Pharmacy II**

A laboratory course designed to give students experience in utilizing industrial instrumentation to test basic principles and theories in the design and production of various dosage forms.

*Credits: 3*

*Every Spring*

#### **PHS 936 Dosage Form Design**

Biopharmaceutic and pharmacokinetic principles, coupled with physical pharmacy concepts, are used to discuss methods necessary for optimizing the design of various drug-delivery systems. The course is intended for those having a basic understanding of dosage forms and their design, and is geared to the underlying principles of drug release from dosage forms. While a major portion of the course is devoted to oral solids, liquids, topicals and parenteral design are also covered, together with means of evaluation and testing.

*Credits: 3*

*On Occasion*

#### **PHS 937 Pharmaceutical Engineering**

An introduction to basic engineering principles that are involved in the commercial manufacture of pharmaceutical dosage forms. Discussions will focus on how such principles are blending, mixing, heat and mass transfer are utilized to design and specific equipment used in producing powders, tablets, capsules and parenteral products. Basic concepts of cost estimation will also be discussed.

*Credits: 3*

*On Occasion*

#### **PHS 950 Cosmetic/Dermatological Formulations and Technology I**

(The first course in a two-semester sequence.)

Designed for in-depth studies of skin, mechanistic analysis of the relevant skin functions, percutaneous absorption, rationale for dermatologic formulations, physicochemical principles used, performance criteria and evaluation of the topical systems. Emphasis is placed on the product development, scale-ups, manufacturing, stability-testing and performance evaluations of modern-day cosmetic, toiletry and pharmaceutical topical products. The courses cover all types of skin care, hair care and treatment systems including

creams, lotions, shampoos, gels, fluids, makeups, sunscreens and pharmaceutical dermatologicals.

*Credits: 3*

*Every Fall*

#### **PHS 951 Cosmetic/Dermatological Formulations and Technology II**

(The second course of a two-semester sequence.)

Designed for in-depth studies of skin, mechanistic analysis of the relevant skin functions, percutaneous absorption, rationale for dermatologic formulations, physicochemical principles used, performance criteria and evaluation of the topical systems. Emphasis is placed on the product development, scale-ups, manufacturing, stability-testing and performance evaluations of modern-day cosmetic, toiletry and pharmaceutical topical products. The courses cover all types of skin care, hair care and treatment systems including creams, lotions, shampoos, gels, fluids, makeups, sunscreens and pharmaceutical dermatologicals.

*The pre-requisite of PHS 950 is required.*

*Credits: 3*

*Every Spring*

#### **PHS 952 Cosmetic/Dermatological Formulations and Technology Laboratory**

Designed for in-depth study of product development, scale-up, manufacturing, stability-testing and performance evaluations of modern-day cosmetic and toiletry products.

*Credits: 3*

*On Occasion*

#### **PHS 958 Aerosol Science and Technology**

An in-depth study of the physicochemical principles of aerosol science and technology. The topics covered include: aerosol propellants, containers, valve and actuator systems, product development, manufacturing, stability testing and performance evaluations of all types of aerosol products. Special emphasis is placed on the homogeneous and heterogeneous systems used in the formulations of topical, nasal and inhalation aerosol drug delivery products.

*Credits: 3*

*On Occasion*

#### **PHS 960 Properties/Applications of Cosmetic and Pharmaceutical Raw Materials**

Designed to be of special value to individuals involved in formulation and manufacturing work of cosmetic, toiletry and pharmaceutical products. Covers the physicochemical properties of major classes of raw materials. These include tablets, ointments and creams, surfactants, film formers, plasticizers, preservatives, antioxidants, sunscreens, thickeners and dispersants, pharmaceutical solvents, etc. Special emphasis is placed on the creative and innovative application of these raw materials in the development of contemporary cosmetic/toiletry and pharmaceutical dosage forms.

*Credits: 3*

*Every Fall*

#### **PHS 972 Methods of Pharmaceutical Analysis**

Theory of chromatographic, spectrophotometric and other methods of analysis as applied to clinical, pharmaceutical and cosmetic problems is discussed.

*Credits: 3*

*Every Spring*

#### **PHS 979 Design of Peptide and Protein Drug Delivery Systems**

The course covers an introduction to the gene-cloning technology and ex-vivo cell cultures as a new source of protein and peptide drugs. The course will discuss the chemistry, physical chemistry and biochemical properties of polypeptides; physical and chemical degradation pathways characteristic to protein drugs; suggested mechanisms of protein drug absorption; classification and properties of absorption promoters for macromolecules; how to design the appropriate delivery system for a stable, effective protein drug through parenteral or non-parenteral routes. Specific protein products for the diagnosis, treatment and prevention of diseases, which are now commercially available, will be covered.

*Credits: 3*

*On Occasion*

#### **PHS 982 Science and Technology of Controlled Release Systems**

This course will cover design and fabrication of currently utilized devices for controlling the release of drugs to the human body. A wide variety of drug delivery system designs will be analyzed in this course. Mechanisms and kinetics of drug release from these systems, structure and properties of fabrication materials, principles of molecular diffusion across polymer barriers and transport across biological interfaces will be covered. This course is a senior elective for both M.S. and Ph.D. students.

*Credits: 3*

*On Occasion*

## **Pharmacology, Toxicology and Medicinal Chemistry**

#### **PTM 020 Seminar In Pharmacology/Toxicology**

Students, faculty and guests review and discuss original works and recent advances in pharmacology and toxicology. The seminar will include invited lectures on cutting edge research. Mandatory for every student graduating in Pharmacology/Toxicology. May be repeated for credit.

*Credits: 3*

*Every Semester*

#### **PTM 060 Research And Thesis**

Individual research in the various areas of specialization. Students doing the thesis option must register at least twice for this course. Pass-Fail only.

*Credits: 3*

Every Semester

**PTM 070 Special Problems**

Laboratory, fieldwork or library research in the various areas of specialization. Pass-Fail only. Permission of the instructor required.

Credits: 3

Every Semester

**PTM 704 Autonomic Pharmacology**

A course designed to acquaint the students with the historical development of the concept of neurohumoral transmission, adrenergic and cholinergic receptors, storage and release of neurohormones, blocking agents, and biochemical aspects of adrenergic and cholinergic action. Students will be required to read and discuss selected references.

Credits: 3

Every Fall

**PTM 705 Biochemical Pharmacology**

This course considers the mechanisms of drug action from the molecular-biochemical viewpoint. Initial discussion of the fundamentals of drug action is followed by extensive coverage of major drug groups such as anticancer, antimicrobials, analgesics and autonomic drugs. Molecular parameters of receptors are emphasized throughout as in enzymology, where applicable. Outside readings will be assigned.

Credits: 3

Every Fall and Spring

**PTM 707 Carcinogens, Mutagens, Teratogens**

Basic concepts of biochemical toxogenesis; mechanisms involved in the types of carcinogenesis, mutagenesis and teratogenesis; chemical carcinogens; tests for carcinogenesis and mutagenesis; experimental aspects of teratogenesis; environmental agents, drugs and other agents as causative factors.

Credits: 3

On Occasion

**PTM 708 Cardiovascular Pharmacology**

This course will consider the rational therapy in cardiovascular diseases. Principles of physiology, pathology and pharmacology will be included in the discussion of hypertension, coronary artery disease, angina pectoris, myocardial infarction, congestive heart failure and arrhythmias. New treatment modalities will be considered.

Credits: 3

On Occasion

**PTM 709 Advanced Pharmacology**

This is an advanced course in the basic principles of pharmacology. Discussion will include receptor theory, enzyme activity and inhibition, structure activity relationship, pharmacokinetics, adverse reactions and drug-drug interactions.

Credits: 3

Every Fall

**PTM 711 Current Technologies in Pharmaceutical Research and Development**

The healthcare professional of the 21st century must have a basic knowledge of scientific technologies that affect the community and impact the delivery of effective health care. This course will involve a combination of lectures and student presentations to explore the current areas of medical technology that are important to the healthcare professional. Topics to be covered will include the latest developments in the areas of stem cell research, gene therapy, pharmacogenomics, human cloning, therapeutic antibodies, DNA profiling and genetically modified foods.

Credits: 3

On Demand

**PTM 802 Experimental Methods in Pharmacology and Toxicology**

Modern techniques used in the qualitative and quantitative evaluation of drugs and drug toxicity in animal systems. These include whole animal studies, isolated tissue techniques and analytical instrumentation.

Credits: 3

On Occasion

**PTM 804 Inborn Errors of Metabolism**

This course will consider those inherited disorders which are the result of the body's failure to synthesize specific proteins (enzymes) needed for normal metabolism or the synthesis of abnormal proteins.

Credits: 3

On Occasion

**PTM 905 Principles of Immunotherapy**

This course is concerned with the study of antigens and the immune system, the humoral response and the cellular response to antigen. Non-atopic immunological drug reactions and disease states characterized by abnormal immunological responses will be discussed. Research papers dealing with selected immunological topics will be assigned and discussed.

Credits: 3

On Occasion

**PTM 907 Psychopharmacology**

A comprehensive course covering the clinical considerations and biochemical basis of psychotic and neurotic disorders responding to drug therapy. Emphasis to be placed on the complete animal and human pharmacology of antipsychotic, anti-anxiety, antidepressant and antimanic drugs. Appropriate stimulant and sedative/hypnotic agents and current trends and issues will be discussed. Student participation through research papers and seminars will be implemented.

Credits: 3

On Occasion

**PTM 910 Toxicology of Drugs and Chemicals**

General principles of toxicology; current trends and recent developments in the prevention, detection,

diagnosis and treatment of acute and chronic toxicities from drugs and chemicals; toxic drug interactions.

Credits: 3

Every Fall

**PTM 917 Molecular Toxicology**

A comprehensive course which will discuss highly focussed toxin-induced intracellular mechanisms and their molecular targets. Drug- and chemical-induced gene expression, modulation of expression of various genes by chemical antidotes. This course will include detailed discussion of toxin-induced perturbations, modes of cell death, and events at subcellular molecular sites inside the cell, e.g. nuclear (including DNA degrading and repair enzymes), electron transport chain dysfunctions, and cytoplasmic compartments (ribosomes, microsomes and other cytosolic components).

Credits: 3

On Occasion

**PTM 920 Molecular Pharmacology**

An advanced course in pharmacology dealing with the molecular mechanisms of drug action. The discussions will include receptor-drug interactions, importance of chirality, receptor-ligand interactions, interactions of drugs with endogenous polymers, modulators of chemical transmitters and such other topics involving molecular biology.

Credits: 3

On Occasion

**PTM 925 Pharmacogenomics**

Pharmacogenomics, the union of pharmacology and genomics, is emerging as a novel medical research field. This course reviews the history and current status of the influence of hereditary factors on drug action and metabolism, as well as predisposition to diseases. It is intended to introduce graduate students to pharmacogenomics and personalized medicine through a series of lectures, case studies and students' presentations of cutting-edge technologies used in this field.

Credits: 3

On Occasion

**PTM 938 Stem Cells and Regenerative Medicine**

This course is designed to introduce students to the characteristics of the various types of stem cells and their applications in basic research, drug discovery and regenerative medicine. Topics will include the origin of embryonic and adult stem cells and the cutting edge potential and applications of induced pluripotent stem cells (iPS). The course will provide details about the role of stem cells as therapeutic vehicles for treating cancer, cardiovascular diseases, Alzheimer's, arthritis, Parkinson's disease and many inherited disorders such as Huntington's, Muscular Dystrophies, and Sickle Cell disease. Students will also discuss controversial issues that pose a dilemma in the widespread adoption and application of stem cells as potential therapy.

The pre-requisites of PTM 704 and 705 are

required.

Credits: 3

On Occasion

## Pharmacy Administration and Drug Regulatory Affairs

### PHA 010 Biostatistics

An introductory course in statistics with emphasis on applications in the health sciences. Topics include description of data, measures of central tendency and dispersion, inferences from data, significant differences, and measures of similarity and differences among groups of data.

Credits: 3

On Demand

### PHA 050 Research Methodology

A course in the design, implementation and evaluation of research. Topics include problem identification, literature review, research approaches, hypotheses, data-gathering instruments and methods, data analysis and generalization.

Credits: 3

On Occasion

### PHA 060 Research And Thesis

Individual research in the various areas of specialization, Pass-Fail only.

The pre-requisites of PHA 050 and 653 are required.

Credits: 3

Every Semester

### PHA 070 Special Problems

Laboratory, fieldwork or library research in the various areas of specialization. Pass-Fail only.

Permission of the instructor required.

Credits: 3

On Occasion

### PHA 603 Drug Regulatory Affairs

(This course is a prerequisite for all Drug Regulatory Affairs courses, except PHA 661) A comprehensive introductory course that provides an overview, understanding of, and appreciation for the numerous statutes and regulations governing drugs, medical devices and cosmetics.

Credits: 3

Every Fall

### PHA 604 Pharmacoeconomics

This course presents socioeconomic aspects of health care that influence need, demand and provision of health care through the private and public sectors. The course will also develop basic concepts of economic theory as an analytical tool to understand them from provider as well as consumer points of view in an evolving healthcare delivery system.

Credits: 3

On Occasion

### PHA 645 Internship in Drug Regulatory Affairs

This course is designed for those graduate students who have an interest in employment opportunities in the pharmaceutical industry or government. The student works in an on-the-job setting on carefully planned work activities designed to provide a basic understanding of the drug regulatory environment, process and outcome. A report of these work activities is required at the completion of the course. Pass-Fail only.

Credits: 3

On Occasion

### PHA 651 Pharmaceutical Labeling, Advertising and Promotion

A comprehensive course which reviews prescription and OTC drug labeling, advertising and promotion regulations. Examines the development and clearance of labeling and advertising pieces (container labels, package inserts, journal ads, direct mail, visual aids, reminder advertising, etc.). Discussion of principles of Fair Balance, Brief Summary and Full Disclosure. Students will be required to prepare advertising and promotional pieces. The role of the regulatory affairs department, product manager, advertising agency, etc., will be discussed. Review of institutional advertising, preapproval advertising, prescription drug advertising to the consumer (PDAC), comparative advertising.

The pre-requisite of PHA 603 is required.

Credits: 3

On Occasion

### PHA 653 Seminar in Social and Administrative Sciences

Students generate solutions to current problems in pharmaceutical care, the pharmaceutical industry and public policy, and support their views with evidence that reflects concepts, principles, theories and philosophies from the social/behavioral/administrative sciences. Based upon their research, students will prepare written reports, give multimedia class presentations and conduct class discussions.

Credits: 3

Every Fall and Spring

### PHA 654 FDA Regulation of Over-the-Counter Drugs, Medical Devices and Dietary Supplements

Provides the participants with an understanding of, and an appreciation for, the regulation of over-the-counter drugs, medical devices, cosmetics and animal health drugs as legislated by the Federal Food, Drug, and Cosmetics Act and its amendments and the Fair Packaging and Labeling Act.

The pre-requisite of PHA 603 is required.

Credits: 3

Every Spring

### PHA 655 Chemistry, Manufacturing and Controls (CMC) Regulatory Affairs

This course describes various aspects of CMC

regulatory affairs as they relate to the development, approval and marketing processes for drugs in the U.S. Topics include: FDA vs. pharmaceutical industry viewpoints on CMC regulatory affairs; quality issues related to CMC regulatory affairs; organization of the CMC regulatory function and role of the CMC regulatory professional; CMC regulations and guidance; format, required, required content and scientific considerations for the CMC sections of INDs and NDAs for traditional dosage forms; and an overview of CMC requirements and considerations for other submissions (i.e. generics, biologics, animal drugs, drug master files, devices and international dossiers). Offered on occasion.

The pre-requisite of PHA 603 is required.

Credits: 3

On Occasion

### PHA 657 Principles and Practices of Regulatory Compliance and Enforcement

This course emphasizes the history, development, implementation, monitoring, operational procedures and audit techniques of investigation and enforcement. Enforcement issues and problems are addressed.

The pre-requisite of PHA 603 is required.

Credits: 3

Every Spring

### PHA 658 International Drug Regulatory Affairs

The increasing globalization of product development and marketing means that companies that manufacture and market products in many different countries must comply with an ever-increasing spectrum of laws and regulations. The borders that divide nations seem to be shrinking as the means of rapid communication increase. But the lack of regulatory consistency across the globe makes it extremely difficult for pharmaceutical manufacturer's to implement a globally acceptable product design. The purpose of this course is to provide an overview of global regulatory requirements for U.S. and EU for product registration. Topics covered will include the understanding of the ICH (International Conference on Harmonization) and CTD (Common Technical Document) as well as some basic understanding of international product registration requirements. Following this course, students should be able to understand the fundamentals of global regulatory issues.

Credits: 3

On Occasion

### PHA 660 Mechanics of Preparing INDs and NDAs

This course provides an in-depth assessment and analysis of the requirements of the investigational new drug (IND) and new drug applications (NDA). Component parts, appropriate format, assembly and submission of each is emphasized.

The pre-requisite of PHA 603 is required.

Credits: 3

*Every Fall*

**PHA 661 The American Pharmaceutical Industry**

This course provides a comprehensive view of the key activities in which major pharmaceutical companies are involved, e.g., research and development, pilot manufacturing, manufacturing and packaging, quality assurance, marketing, sales, distribution, regulatory affairs and pharmacy relations.

*Credits: 3*

*On Occasion*

**PHA 662 Ethics in Pharmaceutical Industry**

A comprehensive course designed to investigate the role ethics play in today's pharmaceutical industry. Students will explore case studies related to past, present, and potential future ethical dilemmas concerning clinical trials, patient safety, intellectual property rights, and marketing and advertising practices. Course will also examine issues concerning drug pricing and other public interests that challenge current industry practices worldwide.

*Credits: 3*

*On Occasion*

**PHA 663 Food and Drug Law**

This course is designed to provide a basic working knowledge of the domestic laws regulating food, drugs, cosmetics, biologics/blood and medical devices. It has a practice related direction providing a grass roots understanding of the legislative and regulatory processes through a comprehensive review of the relationships between FDA, the health care industry, consumers and their interest groups and the U.S. Congress.

*Credits: 3*

*On Occasion*

**PHA 665 Healthcare Data Management and Analysis**

Students will learn data management and the most commonly used analysis techniques utilizing SAS or SPSS. Various types of data employed in pharmacy-related evaluation and its advantages and disadvantages will be discussed. Readings and assignments will provide hands-on experience in dealing with data from randomized clinical trials, hospital and pharmacy administrative issues, payer claims, and large surveys. Data analysis to address issues in areas such as pharmacotherapy effectiveness, adverse drug effects, health care utilization, and health care cost will be discussed and practiced.

*The pre-requisite of PHA 010 is required.*

*Credits: 3*

*On Occasion*

## ADMISSION

### Eligibility

1. Holders of the baccalaureate degree, or its equivalent, from an accredited college or university are eligible to apply for admission. The program specializations in Pharmaceutics usually require an undergraduate degree in pharmacy, chemistry, biology or a related science specialty. Certain courses in these programs have specific undergraduate prerequisites such as Organic Chemistry, General Physics and Calculus.
2. The applicant must have an acceptable record in undergraduate studies (preferably a "B" average or better) as reflected in official transcripts of all colleges and universities attended. Attention is given to overall grade averages, grade trends during undergraduate study and areas of scholastic strength. Consideration is also given to professional accomplishments of the applicant since the time of completion of undergraduate studies.

### Admissions Procedures

Applicants are strongly encouraged to submit an application online at [www.liu.edu/apply](http://www.liu.edu/apply). A paper application may be obtained by visiting the Office of Admissions, LIU Brooklyn, 1 University Plaza, Brooklyn, NY 11201-5372, emailing [bkln-gradadmissions@liu.edu](mailto:bkln-gradadmissions@liu.edu), or by calling 718-488-1011. A bachelor's degree (or its equivalent) from an accredited institution, indicating an acceptable record, is necessary to be considered for admission to the graduate programs. Additional requirements are described in the eligibility section above.

The completed application must be submitted with a personal statement of approximately 500 words. Applicants must also submit official transcripts from all colleges and universities attended showing all undergraduate and graduate coursework taken and degrees received, if any. Three completed letters of recommendation are required. A nonrefundable application fee is required. If the applicant mails or submits a paper application in person, they will be assessed a nonrefundable application fee. LIU Brooklyn encourages students to self-manage their application, which means it is the responsibility of the applicant to collect all required documents needed for admission and manage where documents are to be mailed. Students needing assistance and clarification are encouraged to email the Graduate Admissions Office at [bkln-gradadmissions@liu.edu](mailto:bkln-gradadmissions@liu.edu).

Most graduate programs are available each semester on a rolling admissions basis with applications accepted as long as space is available. However, it is strongly encouraged that applications and supporting materials be submitted

as early as possible. Applications and all supporting documents from international applicants must be received by May 1st for fall admission and by November 1st for spring admission.

Applicants for all graduate pharmacy programs must submit GRE scores from the General Aptitude Test. For information on the GRE, contact the Educational Testing Service at GRE-ETS, P.O. Box 6000, Princeton, NJ 08541-6000 or at [www.ets.org/gre](http://www.ets.org/gre).

A student will be classified as matriculant when accepted into a degree program. Students admitted with technical or academic deficiencies (e.g., incomplete official transcripts) will be classified as matriculants with conditions, pending fulfillment of those conditions. Technical deficiencies must be removed before the end of the first semester of enrollment. Academic deficiencies must be satisfied before the completion of 12 credits required in the degree program or within one year. Students are in good academic standing as long as they are permitted to continue in attendance in matriculant status.

In addition, students holding a bachelor's degree from accredited colleges and universities may be admitted as non-matriculated if the coursework is intended to help them in their jobs. Special Students must meet the same standards of admission as those admitted to degree candidacy. Granting Special Student status for either technical or academic reasons does not obligate the college to give such applicants matriculant status. Admission of a Special Student to matriculant status will depend upon the quality of all of the student's credentials as well as performance in courses taken as a Special Student.

### Notification of Acceptance

Students will be notified of the admissions decision shortly after all the necessary documents (application, transcript, official test score report and letters of recommendation) are received. Once a candidate is accepted, he or she is required to make a deposit of \$500 to reserve a place in the entering class. This deposit is applied to the first semester's tuition. It is not refundable should the student decide at a later date not to attend the LIU Brooklyn campus.

### International Students

Applications are welcome from international students who hold the equivalent of a four-year bachelor's degree. To be considered for admission, undergraduate transcripts/marksheets for each year of study, including degree conferral (diploma/degree certificate) are required. All records must be translated into English and be original or copies of the original, certified/attested by an official of the school issuing that record or the Consulate/Ministry of Education of the issuing country. A course-by-course evaluation, completed

by an acceptable international credential evaluation agency, is recommended, but not required, on all transcripts/mark sheets from colleges or universities outside of the United States. A complete list of acceptable agencies can be requested from the Office of Admissions or found on [www.liu.edu/brooklyn/forms](http://www.liu.edu/brooklyn/forms). All international students for whom English is not a native language are required to take the Test of English as a Foreign Language (TOEFL) administered by the Educational Testing Service or the International English Language Testing System (IELTS) examination. Information on the examinations may be obtained by visiting [www.ets.org](http://www.ets.org) and [www.ielts.org](http://www.ielts.org), respectively from American consulates and embassies abroad, or from the United States Information Service (USIS) in each country. Proficiency in English must be demonstrated. A student who needs additional study in English may be required to take English courses for foreign students at LIU before or concurrently with an academic program.

Applications from international students must be accompanied by the nonrefundable application fee and received no later than May 1 for the fall semester and November 1 for the spring semester. When credentials are complete and found to be satisfactory, the applicant will be required to submit a \$500 deposit and a certified statement of financial support. The deposit will be applied to tuition and is not refundable should the student decide not to attend the university. An I-20AB or IAP-66 form will be issued upon receipt of the deposit and statement of financial support. Students should not make plans to come to the United States until they have received the appropriate non-immigration forms.

Health insurance coverage is compulsory for all international students and their dependents. Information pertaining to the health insurance coverage may be obtained from the Office of International Students, which assists students on campus.

Students holding F-1 (student) visas are required by law to be fully matriculated and be registered for at least nine credit hours per semester.

Students should be aware of tuition rates as well as of the relatively high cost of living in and around New York City, and come prepared to finance their education.

### Transfer Credits

#### Advanced Standing

Graduate courses taken at other graduate schools prior to admission to LIU Pharmacy may be transferred for credit. Such courses may be used to meet requirements, provided the student requests the transfer of credit in writing at the time of application. Transfer credit must be in advanced work and is limited to six credits for courses with a grade of "B" or higher completed within the three-year period prior to admission to

LIU Pharmacy. All transfer credits are subject to approval by the program director and associate dean.

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### **New York State Immunization Law**

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The New York State Health Department requires college and university students born on or after January 1, 1957 to be immunized against measles, mumps and rubella. All students attending the university, including matriculants and non-degree students, must show proof of immunity if they wish to register for classes. In addition, New York State requires that LIU Brooklyn maintain a record of each student's response to the meningococcal disease and vaccine information. The form must be signed by the student and contain either a record of meningitis immunization within the past 10 years OR an acknowledgement of meningococcal disease risk and refusal of meningitis immunization signed by the student.

For information on student procedures for complying with this law, please contact the Office of Enrollment Services at 718-488-1042.



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## ACADEMIC POLICY

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### Student Responsibility

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The student is responsible for knowing deadlines, degree requirements, and enrolling for courses listed under the degree program. The student is held responsible for knowing the university regulations with regard to the standard of work required for continuance in the graduate program. For additional information students should consult with the Office of Graduate Programs.

### Residency Requirements

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Students are expected to complete all of their courses at LIU Pharmacy. Students may, however, receive a maximum of six transfer credits from other institutions. Permission to take such courses at other institutions while in residence at the college must be obtained from the program director and the associate dean.

### Grades and Quality Points

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Credit is granted for courses completed with the grade A, A-, B+, B, B-, C+, or C. The F grade signifies failure. P (passed for credit) may be used to mark completion of work in certain research practicums, seminars, workshops and thesis courses.

INC (incomplete) may be used as an interim grade for the first half of a two-semester course, for failure to complete all course requirements, and for thesis courses before acceptance of the thesis. Any other failure to complete the course requirements (e.g., the submission of a term paper) may be recorded as INC. Except in thesis courses, INC marks that have not been replaced by a letter grade within one year may be changed only by repeating the course.

A student may not repeat a course without permission of his or her program advisor and/or the associate dean. If a student, with appropriate permission, repeats a course more than once, all grades except the first will be computed in the student's average. Satisfactory completion of the course does not eliminate the original INC or ABS from the student's record.

NGR is a temporary mark when no grade has been submitted. AUD recognizes that a course has been audited.

The symbol W is assigned when students officially withdraw from a course in which they were doing satisfactory work. The symbol UW is assigned when students unofficially withdraw from a course. The UW is not computed in the student's average.

The college's GPA is employed to determine the average grade status of a student. The grade A corresponds to a 4.000 quality point equivalent, A-

to 3.667, B+ to 3.333, B to 3.000, B- to 2.667, C+ to 2.333, C to 2.000 and F to 0.000. P, INC, ABS, W and UW grades do not affect the GPA.

The quality points to which a student is entitled are computed by the formula  $X = N \times Y$ , where X is the number of quality points, N the quality point equivalent assigned to the grade, and Y the number of credits. The GPA is obtained by dividing the sum of the quality points received in all courses by the total number of credits, including unrepeatable F's.

GPA computations are carried to the third decimal place from which rounding takes place to the second decimal place. For example, a computed GPA of 2.994 will be rounded down to 2.990. A computed GPA of 2.995 will be rounded up to 3.000. On all official LIU transcripts, a GPA will be displayed to three decimal places with the third decimal place always being zero due to rounding.

### Academic Standards

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The college reserves the right to dismiss, at any time, a student whose academic record is unsatisfactory. To be in good academic standing, a student must make appropriate progress toward fulfilling all requirements of the graduate program (M.S. or Ph.D.) in which he/she is enrolled. Failure to do so will be cause for dismissal. Academic probation is the initial official act for a student failing to make satisfactory progress. Students will be duly notified by the program director that they have been placed on probation.

A graduate student will be placed on probation for:

1. failure to maintain an overall cumulative grade-point average (GPA) of 3.000 and/or,
2. earning a grade of C+ (or less) in more than two courses (these courses may be repeated with the permission of the program director and associate dean).

A graduate student will be dismissed from the program for:

1. failure to rectify probationary status (i.e., obtaining GPA of 3.000 within two semesters.
2. receiving "F" grade in any course.
3. failure on the qualifying examination (for students in the Ph.D. program). Note: the student will be allowed to repeat the examination. However, if a student fails the examination more than once, he/she will be dismissed from the program.
4. failure on the comprehensive examination (for students in the M.S. program who choose the non-thesis option). Note: the student will be allowed to repeat the examination. However, if a student fails the repeat examination, he/she will be dismissed from the program.

A student may appeal an academic dismissal once by petition to the associate dean of the college. The petition should present a thorough analysis by the student of the reasons for having failed to maintain satisfactory academic progress

and a comprehensive plan for rectifying his/her deficiencies within a reasonable period of time, preferably after one semester of study but not exceeding two semesters of study, and that conforms with all other academic regulations of the college. The petition is considered by the associate dean who may request that the student appear in person to substantiate his/her position and answer questions. Students are advised that successful appeals of academic dismissals are rare and usually occur only in those circumstances where substantive underlying causes for unsatisfactory academic progress were previously unknown to the college. Generally, in cases where substantive underlying causes exist for unsatisfactory progress, an extension of academic probation will have been granted to allow the student additional opportunity to remedy his/her noncompliance with satisfactory academic progress. Decisions of the associate dean that a student believes may demonstrate arbitrary and capricious treatment or to be fundamentally unfair may be appealed, as a final step, to the dean of LIU Pharmacy.

### Criminal Background and Drug Testing

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A criminal conviction and/or the use of illegal drugs may impede or bar your entry into your chosen field of study. Students seeking entrance into many graduate fields of study including counseling, education, and health and human services professions should be aware that a criminal record can result in the refusal of licensing/certification/registration agencies to issue the credential needed to practice in that field of study. Prospective students are urged to contact the pertinent state and/or federal licensing agency to inquire whether a criminal record will have an impact on licensure or certification eligibility.

Many clinical/field experience affiliates now require the completion of criminal background checks and/or drug testing for employees, volunteers and students affiliated with the site. Therefore, students who plan to participate in a clinical/field experience may be asked to undergo a criminal background check, and/or a drug screen. Students should be aware that our clinical/field affiliates can reject or remove a student from the site if a criminal record is discovered or if a drug test is positive. In the event that a student is rejected from a clinical/field site due to information contained in the criminal background check, or drug screen, the student may be unable to complete a required clinical/field experience. In such an event, the student, may be advised to withdraw from the program.

### Public Information Policy

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The Family Educational Rights and Privacy Act (FERPA) of 1974 specifically provides that a

school may provide what they deem "directory information" and only this information, without the student's consent or as provided by the law. Directory information at Long Island University includes the following: the student's name, enrollment status, major field of study, dates of attendance, degrees and awards received, past and present participation in officially recognized sports and non-curricular activities, physical factors (height, weight) of athletes and the most previous educational agency or institution attended. Students who wish to have their directory information withheld can make this election by filing the appropriate form at Enrollment Services.

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## Registration

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### Registration for New Graduate Students

Newly admitted students to the graduate programs should closely follow the registration procedures provided to them. It is highly recommended that they consult with the program director about course selection, and work with the coordinator of graduate programs and the program director to learn the specific requirements of the selected program.

### Registration for Continuing Students

Registration beyond the first semester depends on satisfactory progress in fulfilling college graduate programs' conditions. For further information about grade requirements, see the section "Academic Standards". For continuing students in good standing, registration for approved degree program courses outlined in the LIU Pharmacy bulletin is required. Students not fulfilling the requirements should make an appointment with the program director before registering for courses in order to obtain approval and update the progression worksheet maintained in the Office of Graduate Studies.

### Late Registration

Beginning the first day of classes for a session and continuing for approximately two weeks is a period of time referred to as Late Registration. Within the late registration period, a student may register for courses only with the consent of the program director. After the late registration period, consent of the associate dean is required. Please refer to the academic calendar maintained by Enrollment Services for registration dates and deadlines.

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## Maintenance of Matriculation

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It is expected that students will fulfill the requirements for advanced degrees by registering over successive semesters. Degree candidates may find themselves unable to register for courses during one or more semesters, or to complete all coursework because they are working on their thesis. To remain on an active status and to qualify for a degree under the requirements in effect when

admitted, such students must register each semester by writing "Maintenance of Matriculation" on the registration form and paying a \$250 fee for each such semester. A student who fails to register under "Maintenance of Matriculation" will be classified as inactive. Re-admission will require the submission of a new application for admission and a review of the student's record and qualifications with respect to the requirements for admission in effect at the time of readmission.

Students serving in the Armed Forces of the United States maintain matriculation automatically during the time of their service. They are required, however, to inform the Office of Graduate Studies of the dates of their entrance into military service and termination of active duty.

Maintenance of matriculation for M.S. students without attending classes is limited to one year. Approval for extension of this time limit must be obtained from the associate dean or a designated representative. The limitation on maintenance of matriculation does not apply to Ph.D. candidates who have begun work on their doctoral dissertation.

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## Withdrawal and Refunds

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### Withdrawal from Courses

Students who fail to withdraw officially from a course by the date so indicated by the Office of Graduate Studies, and do not attend and/or meet the course requirements have, in fact, earned an "F," and will receive that grade designation. The grade "W" will be given to students who are in compliance with official withdrawal procedures. Students themselves must initiate formal withdrawal procedures. Failure to do so can result in loss of possible refunds or inaccurate records of academic performance (or both). Students must obtain a Withdrawal Form from the Office of Graduate Studies and have this form signed by the instructor of the course(s) concerned.

A student who wishes to withdraw from the college should notify the Office of Graduate Studies in writing. Otherwise, honorable dismissal will be withheld. No certificate or transcript of record will be granted, however, until all financial indebtedness is settled. If a student withdraws from the college prior to the completion of a semester, he or she must file the appropriate Withdrawal Form with the Office of the Registrar.

A student who withdraws from a course in which he or she is doing satisfactory work will be given the grade W. A student registered for a course is considered to be in attendance until the date of his or her official withdrawal.

Withdrawal from courses is permissible at any time up to deadline established by the Office of Graduate Studies. The symbol UW is assigned when a student unofficially withdraws from a course. Neither W nor UW is computed in the student's average.

Students who are on academic probation when

they withdraw from all courses are not eligible for readmission without their dean's approval.

### Withdrawal to Enter the Armed Forces

Students withdrawing to enter into the Armed Services should note carefully the following regulations outlining the position of the college with regard to such withdrawal:

1. Application for withdrawal in good standing must be made at the Office of the Registrar. The official date of withdrawal is the date on which the application is made.
2. Students may receive a proportionate refund.
3. Specific policies may be obtained from the Office of the Registrar.

### Refunds

When a student withdraws, the university will refund tuition according to the schedule shown on the pages following Tuition and Fees listings.

Registration, graduation and university fees are not subject to proration and are not returnable.

Date of withdrawal will be considered the day on which the student has completed all Withdrawal Forms and has submitted these forms to the Office of the Registrar.

A student may be dismissed at any time for misconduct of such a nature as to be prejudicial to the college. In the event of such dismissal, fees will not be refunded in whole or in part.

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## Related Curricular Matters

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### Change of Plan

A student desiring to transfer from one LIU Pharmacy graduate program to another must be formally accepted by the program director of the graduate program to which admission is sought and by the associate dean of the college. The student is expected to notify the program director of the program that he or she is leaving.

### Repeating Courses

Students may repeat any course with the permission of their advisors. To repeat a course more than once, they must have permission of the program director and associate dean. Credit will be earned only once, and the second grade—whether higher or lower—will be computed in the student's average. After a student takes a course a second time, all grades except the first will be computed in the student's average.

### Cancellation of Courses

LIU Pharmacy reserves the right to cancel undersubscribed courses or courses for which no faculty are available to teach. When it does so, there is no program change fee.

### Timit Limit

The M.S. curricula are projected for completion within a two-year period.\*

For the period of study for the doctoral programs, students should consult the program (see Graduate Curriculum). Nine credits are considered a full-time load for academic purposes. Full-time enrollment status for graduate students for all federal and state financial aid programs is

defined as 12 credits per semester. Permission of the program director is required to carry more than 12 credits.

*\*While all academic and other requirements for the degree of Master of Science can be completed in two semesters and summer work, the maximum allowable time for the completion of all requirements and the awarding of the degree is five years from the date of first matriculation (exclusive of time spent in the armed forces), unless the associate dean approves an extension. The maximum allowable time for the completion of all requirements for the doctoral degree is eight years from the date of first matriculation unless the associate dean approves an extension. Any course outside the time limit will not count as credits toward the degree unless approved in writing by the appropriate program director and associate dean.*

**Changes on Academic Records**

Students have until the time of their graduation to have changes made on their academic records. Once a student has graduated, the academic record is frozen and cannot be changed retroactively.

## GRADUATION REQUIREMENTS

Master of Science students may elect either a Thesis Option or Non-Thesis Option (see below). Doctoral students should consult the program for the Plan of Study (see Graduate Curriculum).

The responsibility for properly fulfilling the requirements for degrees rests entirely with the student. Students generally meet the requirements announced in the graduate section of the LIU Pharmacy Bulletin for the academic year in which they were matriculated or readmitted. Students for whom graduation requirements change during their progress to a degree may, with the permission of the Associate Dean, choose requirements in effect at the time of admission or those in effect at the end of the course of study.

Exceptions to the provisions of this section of this bulletin may be made only with the prior written sanction of the associate dean on the recommendation of the appropriate program director.

### Thesis Option

1. Completion, with a minimum cumulative GPA of 3.000, the required curriculum in the designated area of specialization, and 6 credits of research and thesis.
2. Completion of a Master's Thesis which demonstrates the candidate's ability to select, organize and present the results of investigations in his or her field of specialization. The following general information is intended for the student's guidance in the preparation of the thesis:
  1. The student should have completed at least 12 credits toward the degree before submitting a proposal.
  2. The student should obtain the latest copy of Supplementary Information and Suggestions Concerning the Master's Degree Thesis and Proposal from the Office of Graduate Studies.
  3. The approval of the program director must be obtained for the thesis after the submission of the proposal.
  4. The sponsoring committee must consist of three members of the graduate faculty of whom two must be from the full-time graduate faculty. The chair of the committee may be selected by the student or appointed by the program director.
  5. The chair of the sponsoring committee supervises the student during the period of thesis preparation.
  6. Upon completion of the thesis all members of the sponsoring committee must read and approve the thesis before acceptance.
  7. The subject of the thesis should be of significance and the completed manuscript should be representative of a high degree of

scholarly attainment.

8. Students must conform to the submission dates in the thesis proposal outline and the dates given in the calendar of this bulletin.
9. The student is required to make an oral defense of the thesis before the sponsoring committee.

NOTE: Thesis Option students enrolled in the M.S. in Pharmaceuticals with specialization in Industrial Pharmacy must also successfully pass a written comprehensive examination in addition to the completion of the Thesis.

### Non-Thesis Option

1. Completion, with a minimum cumulative GPA of 3.000, of the required curriculum in the designated area of specialization.
2. Passing a written comprehensive examination. This examination will be given twice annually, generally in early December and late April. Dates may be obtained from the Office of Graduate Studies.

*Note: Students should refer to the information on individual Master of Science programs in the Graduate Curriculum section of this bulletin for specific information and coursework requirements in each area of specialization, and for information regarding any other degree requirements that may pertain to their areas of specialization.*

### Comprehensive Examination for Master's Students

Passing the comprehensive exam at the master's level is required for the M.S. degree for non-thesis students enrolled in the Pharmacology and Toxicology, Pharmaceuticals with Specialization in Cosmetic Science, and Drug Regulatory Affairs programs. Passing the comprehensive exam at the master's level is required for the M.S. degree for all students (thesis and non-thesis) enrolled in the Pharmaceuticals with Specialization in Industrial Pharmacy program.

#### The Comprehensive Examination Process

The comprehensive examination is given twice each year, generally in early December and late April. Students should apply for the comprehensive exam in their final semester. Students should contact the coordinator of graduate programs for forms, application deadlines and examination dates.

#### Eligibility Requirements

1. Students must have a cumulative GPA of 3.000 or above.
2. Students must be in the process of completing all of their required coursework for their degree in the semester in which they are planning to take the examination.

#### Passing Scores

A score of 75 or higher is required to pass the examination.

If a student has not successfully completed his/her coursework in the semester during which he/she takes the exam, he/she will have to repeat the coursework and re-take the exam.

If a student fails the exam and wants to review the exam, he/she should do so within 7 days following receipt of his score.

#### Reporting of the Scores

The Office of Graduate Programs shall inform students, in writing, of their scores.

## GRADUATE PROGRAMS

### TUITION AND FEES (2015-2016)

Students are billed for tuition and fees at the time of registration. Room and board charges are reflected at the time of room assignment. Students must make satisfactory payment arrangements prior to the start of each term or before moving into residence halls to remain in good financial standing.

Students must make acceptable payment arrangements or officially withdraw prior to the start of classes to remain in good financial standing.

Acceptable payment arrangements include:

- Payment in full using check or credit card;
- Approved financial aid covering all charges;
- Signed and approved University Payment Plan Agreement Form; and/or
- Participation in an approved third-party payment agreement.

A student who complies with any of the above shall be considered in good financial standing, so long as all conditions are met throughout the term. All payment arrangements must be completely satisfied or late payment fees and/or penalties will be applied to your account. If your balance becomes seriously past due and no arrangements are made, the university will refer it to an external collection agency or law firm, where additional fees and penalties may be charged to your account. All policies can be found online at [www.liu.edu/enrollment-services](http://www.liu.edu/enrollment-services).

### Tuition and Fees

Application Fee (non-refundable)	\$50
Tuition Deposit (non-refundable)	200
Master's Degree and Graduate Studies, per credit	1,337
Pharmacy, Ph.D., per credit	1,363
Dining Dollars, 9+ credits, per term	50
University Fee:	
12+ credits, per term	884
Less than 12 credits, per term	442

A detailed listing of all tuition and fees can be found at [www.liu.edu/enrollment-services](http://www.liu.edu/enrollment-services).

### Residence Life

#### ACCOMMODATIONS (per term)

Housing Deposit (non-refundable)	\$300
490 Fulton Street:	
Studio	9,780
Double Studio	7,956
1 Bedroom Double	8,262
1 Bedroom Apartment	10,690
2 Bedroom Apartment	10,200
3-4 Bedroom Apartment	9,792
5-6 Bedroom Apartment	6,528

#### MEAL PLANS (per term)

Residential Meal Plan 1 (unlimited meals plus \$300 dining dollars)	2,469
Residential Meal Plan 2 (14 meals per week plus \$300 dining dollars)	2,259
Residential Meal Plan 3 (10 meals per week plus \$300 dining dollars)	2,049

Residential Dining Dollars	300
Dining Dollars+ Plan (\$200 additional dining dollars)	200

All resident students are required to participate in a meal plan. The Residential Dining Dollars plan is only available to residents in apartments with kitchens. Dining dollars can be used at point of sale locations across the campus.

### Tuition Liability and Refund Policy

Students are responsible for knowing that they are registered for classes, that they are expected to pay for these classes in a timely manner, and must understand and follow the correct procedures to withdraw from classes. **Non-attendance and/or non-payment do not constitute official withdrawal from the university.** The calculation of your tuition and fee liability, if any, is based on the date of your official withdrawal or drop in accordance with university policy. Room and board charges must be cancelled through the Office of Campus Life. Liability for these charges are assessed on a pro-rata basis at the time of cancellation.

When a student withdraws, the university will refund tuition and fees as per the following schedules:

#### Fall and Spring Regular Sessions

Period	Liability
Weeks 1-2	0%
Weeks 3-4	50%
Weeks 5+	100%

#### Summer and Other Multi-Week Sessions Seven Weeks or Greater

Period	Liability
Week 1	0%
Week 2	50%
Week 3+	100%

#### Summer and Other Multi-Week Sessions Less Than Seven Weeks

Period	Liability
Day 1-2	0%
Day 3-5	50%
Day 6+	100%

Students requesting a review of their assessed tuition and fee liability must complete the appeals form for student withdrawals in accordance with university policy and submit all required supporting documentation. Detailed policies and procedures can be found at [www.liu.edu/enrollment-services](http://www.liu.edu/enrollment-services).

### Student Health Insurance

Long Island University has partnered with Gallagher Koster to develop a cost-effective Student Health Insurance Plan that provides our students and families with robust medical coverage at school, back home, and while traveling or studying abroad. All international students, clinical students, residential students, Global College students and intercollegiate athletes qualify and are automatically enrolled in the plan but can waive participation online at [www.gallagherstudent.com/liu](http://www.gallagherstudent.com/liu) if they have comparable coverage under a family plan or other policy.

#### Annual Rates

- Mandatory and Compulsory/Hard Waiver Students - \$2,193
- Spouse/Domestic Partner - \$2,193
- Each Additional Child - \$2,193

Qualifying new students who enter during the Spring or Summer terms can participate in the plan with prorated coverage periods and rates.

#### Enrollment/Waiver Periods

Annual Plan: July 1 – September 30

Spring Plan: January 1 – February 15

Summer Plan: May 15 – July 1

Beginning on July 1st, students can go to their My LIU account and click on the "Student Health Insurance" link from the Student Center Home Page to enroll in the plan, waive coverage, print temporary ID cards, and file or check claims. Coverage begins on August 15, 2015, which represents the start of the plan year, and extends through August 14, 2016. You can also visit the Gallagher Koster website directly at [www.gallagherstudent.com/liu](http://www.gallagherstudent.com/liu).

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## FINANCIAL AID

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Financial Aid is awarded on an annual basis in the form of scholarships, grants, loans and part-time employment. Assistance is offered to students admitted into eligible graduate degree and advanced certification programs at LIU Brooklyn.

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## Application Process

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All candidates for LIU scholarships or grants, Federal grant and loan programs, work-study opportunities, and New York State awards are required to complete the Free Application for Federal Student Aid (FAFSA) each year. The FAFSA should be completed online at [www.fafsa.ed.gov](http://www.fafsa.ed.gov). The federal school code for the LIU Brooklyn campus is **002751**. Continuing students at LIU must reapply for financial assistance each year. Applicants for financial aid may expect to be notified of the decision reached by the Office of Enrollment Services (Financial Aid) shortly after their files have been completed. No action will be taken until the candidate has been accepted by the Office of Admissions.

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## Awards

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### LIU Scholarships and Awards

The LIU Brooklyn campus awards approximately \$100 million in university scholarship assistance to students each year. These scholarships and grants, which do not require repayment, are based on academic success, athletic ability, community service, artistic talent, and financial need. The campus also offers honors and departmental scholarships for specific programs of study.

In addition to university financial assistance, LIU Pharmacy provides additional aid in the form of scholarships funded through the generosity of alumni and friends. Awards are based on academic achievement and professional promise, as well as financial need. Interested students should submit a Pharmacy Scholarship Application prior to the start of each Fall semester for consideration. Additional information on these scholarships, including how to apply, can be found online at [www.liu.edu/pharmacy/scholarships](http://www.liu.edu/pharmacy/scholarships).

### Federal and State Aid Programs

The Federal government awards financial assistance to students who demonstrate financial need according to a variety of economic criteria as determined by the United States Department of Education. The criteria include an individual and/or parents' income and assets, family's household size, and the number of family members attending college. Benefits from all federal programs are subject to legislative changes. Recipients of federal programs must be U.S. citizens or permanent residents. Contact the Federal student aid agency at 1-800-433-3243 or [www.federalstudentaid.ed.gov](http://www.federalstudentaid.ed.gov) for more

information.

A detailed listing of Federal and State programs, including Direct Loans, can be found online at [www.liu.edu/brooklyn/finaid/grants](http://www.liu.edu/brooklyn/finaid/grants).

### Veteran Benefits

The LIU Brooklyn campus has a proud and distinguished history of serving its nation's military veterans and active duty service members. Our supportive community of staff and faculty is dedicated to seeing veterans succeed in their education, career and life. To accomplish this mission, LIU Brooklyn provides the resources needed to pursue educational opportunities while balancing the demands of life both inside and outside the classroom.

With the Post-9/11 GI Bill, education-related benefits, including funds for tuition, housing, books and supplies, are better than ever for our veterans. In addition, financial aid, scholarships and New York State tuition awards and grants may also be available to help you with costs that are not covered by your veteran benefits.

### Private Loan Program

If you find that you need funding beyond the limits of the Federal Direct Student Loan Program, you may wish to consider a private loan. These loans are not guaranteed by the Federal government and are considered private loans. We urge all students and parents to research any lender they are considering for this type of funding and to specifically ask a number of key questions, including:

- current interest rates
- co-signer requirements
- repayment options, both in school and out
- whether or not the loan may be sold to another provider

The university does not have a preferred lender for alternative loans; each student has the right to select the educational loan provider of his or her choice.

If you have considered applying for an alternative loan, you may be required to complete the Free Application for Federal Student Aid at [www.fafsa.ed.gov](http://www.fafsa.ed.gov) in order for the university to certify your loan eligibility. Alternative loans that are used to cover prior semesters may require additional information for approval, such as letters certifying indebtedness, attendance verification, official transcripts, etc. As such, when requesting funding for prior terms, be sure to reference the correct academic year on your application.

The basic process involved with securing alternative loans is the electronic filing of an application, institutional certification, and approval information. Generally speaking, electronic filing processing requires at least 72 hours before a lender will respond. The university will assist you in this process and will determine for you the maximum loan amount you will be allowed to borrow based on your estimated cost of attendance and pre-existing financial aid awards. The complete process normally takes 7-14 business

days.

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## Terms and Conditions

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Awards are not finalized until all requested supporting documentation has been properly submitted and reviewed. All awards are subject to funding levels and appropriations by Federal and State agencies. Many aid programs require that you be matriculated and attend the LIU Brooklyn campus on at least a half-time basis. LIU reserves the right to adjust or cancel offers of financial assistance if you make changes to your FAFSA, adjust your registration status, withdraw from one or more courses, or fail to maintain good academic standing for financial aid purposes. LIU also reserves the right to change the selection criteria, deadlines, and awarding process of academic awards.

Awards, grants, and scholarships listed are for graduate study only and do not apply to graduate or professional studies. Students enrolled in accelerated and dual degree programs are advised to contact the Undergraduate Admissions office to obtain information on aid for the undergraduate portion of their degree.

All awards from the LIU Brooklyn campus are accompanied by a letter of stipulation detailing the terms of the award. Students are governed by the stipulations accompanying their specific awards. Part-time status, for the purpose of scholarship and grant renewal, is defined as carrying and earning a minimum of 6 credits per semester.

Unless otherwise indicated, university assistance is for tuition charges only. Students are advised to inform LIU of any aid received from outside sources, and awards from LIU may be adjusted if such additional assistance is in excess of estimated need.

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## Standards for Satisfactory Academic Progress (SAP)

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### Federal Financial Aid Programs

Federal regulations require students to make satisfactory academic progress (SAP) toward the completion of a degree or Title IV eligible advanced certificate program in order to receive Title IV financial aid through the Federal Direct Loan Program. Satisfactory academic progress is measured qualitatively and quantitatively by two components: a student's cumulative GPA and the amount of credits they have earned relative to their year in school and enrollment status.

Satisfactory academic progress is measured annually, at the end of the Spring semester, after all grades have been submitted. Students failing to meet the criteria stated below are eligible to appeal this decision if extenuating circumstances played a factor in their academic performance. Examples of such circumstances could include an illness, accident, separation or divorce, or the death of a relative. An appeal must be made in writing to the

university and include an explanation of the circumstance(s) that may have adversely affected the student's ability to meet the academic requirements, and the plan or changes that have occurred which will allow them to make SAP in the future. All appeals must be accompanied by supporting documentation, such as a letter from a doctor or attorney. If an appeal is granted, the student will either be placed on probationary status for one semester during which the student must meet SAP guidelines, or must successfully adhere to an individualized academic plan that was developed for them by their academic advisor as part of their appeal. Failure to meet these criteria will result in loss of eligibility for Title IV funds.

Students wishing to receive Title IV financial aid for Summer semesters may have these awards evaluated and offered prior to a determination of SAP. All students receiving summer aid will have their SAP evaluated after all spring grades have been submitted. Students not making progress will have their summer aid cancelled, and the student will be liable for all tuition and fee charges incurred unless an appeal is filed and granted as outlined above.

The criteria below outline the progress that is required for a full time graduate student to be considered in good standing:

**Completion Rate Requirements:** All students must earn at least 67% of their attempted hours. The maximum time frame to complete each degree varies by department and is outlined herein under the specific degree program.

- **GPA Requirements:** Students who have earned fewer than 13 credits must maintain a 2.5 GPA; students who have earned 13 credits or more must maintain a 3.0 GPA.

**Notes:**

- Progress standards for part-time students are prorated based upon the criteria above.
- Qualifying transfer credits are counted as both attempted and earned credits but have no effect on the GPA.
- Grades of W (Withdrawal), UW (Unofficial Withdrawal), INC (Incomplete), ABS (Absent) and IF (Incomplete Fail) are counted as credits attempted but not completed, and do not affect the GPA.
- Repeated classes will count only once towards credits completed. A student may receive aid for a repeated class that has been successfully completed once.
- Any departmental requirements that exceed these standards must be adhered to for the purposes of evaluating SAP.



**LIU BROOKLYN APPROVED PROGRAMS**

**New York State Education Department Inventory of Registered Programs**

Enrollment in other than registered or otherwise approved programs may jeopardize a student's eligibility for certain student aid awards.

**Honors College**

Major	Hegis Code	Degree
Interdisciplinary Major	4901	BA, BS

**Richard L. Conolly College of Liberal Arts and Sciences**

Major	Hegis Code	Degree
Biology	0401	BS, MS
Biochemistry	0414	BS
Chemistry	1905	BS, MS
Communication Sciences and Disorders	1220	BS
Communication Sciences and Disorders / Speech-Language Pathology	1220	BS/MS
Speech-Language Pathology (Bilingual Extension)	1220	MS
Computer Art	1009	BFA
Creative Writing	1507	MFA
Dance	1008	BFA, BS
Economics	2204	BA
English	1501	BA, MA
History	2205	BA
Humanities	5649	AA
Humanities	4903	BA
Journalism	0602	BA
Mathematics	1701	BS
Media Arts	0601	BA
Media Arts	1009	MA
Media Arts	0605	MFA
Medical Technology	1223	BS
Music – Applied Music	1004	BA
Music (Jazz Studies)	1004	BFA
Music Education in Urban Schools	0832	BS
Modern Languages – French, Spanish	1101	BA
Philosophy	1509	BA
Political Science	2207	BA, MA
Psychology	2001	BA, MA
Clinical Psychology	2003	Ph.D.
Sociology-Anthropology	2208	BA
Speech	1506	BA

Studio Art	1002	BFA
Visual Arts	1099	BA
Teacher of Visual Arts in Urban Schools	0831	BFA
Social Science	2201	MS
Social Science	4903	BA, BS
Social Science	5622	AA
United Nations	2210	Adv. Cr.
Urban Studies	2214	MA
Writing & Producing for Television	0605	MFA

**School of Business, Public Administration and Information Sciences**

Major	Hegis Code	Degree
Accounting	0502	BS, BS/MS, MS, MBA
Business Administration	5004	AAS
Business Administration	0506	MBA
Business Finance	0504	BS
Business Management	0506	BS
Computer Science	0701	BS, MS
Entrepreneurship	0501	BS
Gerontology	2104	Adv. Cr.
Health Administration	1202	MPA
Healthcare Management	1202	BS
Human Resources Management	0515	MS, Adv. Cr.
Marketing	0509	BS
Not-for-Profit Management	2102	Adv. Cr.
Public Administration	2102	MPA
Taxation	0502.1	MS
Technology Management	0507	BS

**School of Education**

Major	Hegis Code	Degree
Adolescence Urban Education: Biology	0401	BS
Adolescence Urban Education: Biology 7-12: 1st Initial	0401.01	MSEd
Adolescence Urban Education: Biology 7-12: 2nd Initial	0401.01	MSEd
Adolescence Urban Education: Biology 7-12: Non-certification	0401.01	MSEd
Adolescence Urban Education: Chemistry	1905.01	BS
Adolescence Urban Education: Chemistry 7-12: 1st Initial	1905.01	MSEd
Adolescence Urban Education: Chemistry 7-12: 2nd Initial	1905.01	MSEd

Adolescence Urban Education: Chemistry 7-12: Non-certification	1905.01	MSEd
Adolescence Urban Education: English	1501.01	BA
Adolescence Urban Education: English 7-12: 1st Initial	1501.01	MSEd
Adolescence Urban Education: English 7-12: 2nd Initial	1501.01	MSEd
Adolescence Urban Education: English 7-12: Non-certification	1501.01	MSEd
Adolescence Urban Education: Mathematics	1701.01	BS
Adolescence Urban Education: Math 7-12: 1st Initial	1701.01	MSEd
Adolescence Urban Education: Math 7-12: 2nd Initial	1701.01	MSEd
Adolescence Urban Education: Math 7-12: Non-certification	1701.01	MSEd
Adolescence Urban Education: Social Studies	2201.01	BA
Adolescence Urban Education: Social Studies 7-12: 1st Initial	2201.01	MSEd
Adolescence Urban Education: Social Studies 7-12: 2nd Initial	2201.01	MSEd
Adolescence Urban Education: Social Studies 7-12: Non-certification	2201.01	MSEd
Adolescence Urban Education: Spanish	1105.01	BA
Middle Childhood & Adolescence Urban Ed: Biology	0401.01	BS
Middle Childhood & Adolescence Urban Ed: Chemistry	1905.01	BS
Middle Childhood & Adolescence Urban Ed: English	1501.01	BA
Middle Childhood & Adolescence Urban Ed: Mathematics	1701	BS
Middle Childhood & Adolescence Urban Ed: Social Studies	2201.01	BA
Childhood Urban Education	0802	BS
Childhood Urban Education: 1st Initial	00802	MSEd
Childhood Urban Education: 2nd Initial	0802	MSEd
Childhood Urban Education: Non-certification	0802	MSEd
Childhood/Early Childhood Urban Education: 1st Initial	0802	MSEd
Childhood/Early Childhood Urban Education: 2nd Initial	0802	MSEd
Childhood/Early Childhood Urban Education: Non-certification	0802	MSEd
Early Childhood Urban Education: 1st Initial, 2nd Initial	0802.00	MSEd
Early Childhood Urban Education: Non-certification	0802.00	MSEd

Early Childhood Urban Education	0823	Adv. Cr.
Teacher of Physical Education in Urban Schools	0835	BS
Teacher of Visual Arts in Urban Schools	0831	BFA
Music Education in Urban Schools	0832	BS
Teaching Urban Adolescents with Disabilities: 1st Initial	0808	MSEd
Teaching Urban Adolescents with Disabilities: 2nd Initial	0808	MSEd
Teaching Urban Adolescents with Disabilities: Non-certification	0808	MSEd
Teaching Urban Children with Disabilities: 1st Initial	0808	MSEd
Teaching Urban Children with Disabilities: 2nd Initial	0808	MSEd
Teaching Urban Children with Disabilities: Non-certification	0808	MSEd
TESOL: 1st Initial	1508	MSEd
TESOL: 2nd Initial	1508	MSEd
TESOL: Non-certification	1508	MSEd
Bilingual Education	0899	Adv. Cr.
Educational Leadership	0828	Adv. Cr.
Applied Behavior Analysis	2099	Adv. Cr.
School Counselor	0826.01	MSEd
School Counselor	0826	Adv.Crt.
Bilingual School Counselor	0826.01	MSEd
Bilingual School Counseling	0899	Adv. Cr.
School Psychologist	0826.02	MSEd
Marriage & Family Therapy	2104.1	MS, Adv. Cr.
Mental Health Counseling	2104.1	MS, Adv. Cr.

**LIU Global**

Major	Hegis Code	Degree
Global Studies	2210	BA

**School of Health Professions**

Major	Hegis Code	Degree
Athletic Training	1299.3	BS/MS
Diagnostic Medical Sonography	1225	BS
Exercise Science	1201	MS
Health Sciences	1201	BS
Health Sciences / Public Health	1201 / 1214	BS/MPH
Occupational Therapy	1208	BS/MS
Physical Therapy	1212	DPT

Physician Assistant Studies	1299.1	MS
Public Health	1214	MPH
Respiratory Care	1299	BS
Social Work	2104	BA, MSW
Sport Management	0599	BS
Sports Science	1299.3	BS

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### School of Nursing

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Major	Hegis Code	Degree
Nursing	1203	BS
Adult Nurse Practitioner	1203.1	BS/MS, MS
Adult Nurse Practitioner	1203.12	Adv. Crt.
Family Nurse Practitioner	1203.1	MS
Family Nurse Practitioner	1203.12	Adv. Crt.
Nurse Educator	1203.1	MS
Education for Nurses	1203.12	Adv. Crt.

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### LIU Pharmacy

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Major	Hegis Code	Degree
Pharmacology/ Toxicology	0409	MS
Pharmaceutics	1211	MS, Ph.D.
Drug Regulatory Affairs	1211	MS
Pharmacy	1211	PharmD

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