

# Jefferson School of Pharmacy 2010-2012 Course Catalog

Phone: (215) 503-9000

Web Site: <http://www.jefferson.edu/jchp/pharmacy/>

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# The University

## **THOMAS JEFFERSON UNIVERSITY**

Thomas Jefferson University is a health-related institution of higher education. It is an independent, non-sectarian, urban university dedicated to the health sciences. On the graduate and undergraduate levels, the University is committed to educating, in a variety of disciplines, professionals who will form and lead the integrated healthcare delivery and research teams of tomorrow, to discovering new knowledge that will define the future of clinical care through investigation from the laboratory to the bedside, and into the community, and to setting the standard for quality, compassionate, and efficient patient care for our community and for the nation.

Founded in 1824 as the Jefferson Medical College and granted an independent charter with full university rights and privileges in 1838, Thomas Jefferson University was established on July 1, 1969. Today, it encompasses the following major divisions: Jefferson Medical College, Jefferson College of Graduate Studies, Jefferson School of Health Professions, Jefferson School of Nursing, Jefferson School of Pharmacy (JSP) and Jefferson School of Population Health. The University also has a strong collaborative relationship with Thomas Jefferson University Hospital, which is part of the Jefferson Health System.

At Thomas Jefferson University, the approach to the art and science of the healing professions is one that recognizes both the importance of tradition and the necessity for exploration and discovery. As a University, it continues to reflect the philosophies of its founders and their renowned followers in its present view of education, research and service. Its faculties are drawn from noted scientific investigators, clinicians and academicians who bring to the University the keenly felt sense of living, studying and working at one of the world's great centers of medical excellence.

Jefferson students attending the JSP will find, in the descriptive reviews that follow, a means for understanding the depth and the seriousness of the commitment of this institution, as well as a basis for motivation to continue the quality of excellence expected in this academic health center.

## **THOMAS JEFFERSON UNIVERSITY HOSPITALS AND JEFFERSON HEALTH SYSTEM**

From the earliest days, clinical facilities have been the primary setting for the learning experience of Jefferson students. As an academic medical center, Thomas Jefferson University Hospitals and its ambulatory facilities have traditionally provided this clinical setting. Nursing and health profession students, medical students, technologists, scientists and resident and attending physicians work together as a team to deliver a wide range of quality healthcare services.

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Thomas Jefferson University Hospital, a member of the Jefferson Health System, delivers health services with special expertise in cancer, cardiology, orthopedics and neuroscience at the following locations: in Center City Philadelphia, including the Jefferson Hospital for Neuroscience, at the Methodist Hospital Division in South Philadelphia, at a large multispecialty ambulatory practice - Jefferson HealthCARE Voorhees, at Jefferson Radiation Oncology sites and at physician offices throughout the Delaware Valley.

Jefferson is one of only a few hospitals in the United States that is both a Regional Trauma Center and a federally designated regional Spinal Cord Injury Center (together with Magee Rehabilitation). The Jefferson Kimmel Cancer Center is a National Cancer Institute-designated clinical cancer center.

Jefferson has 957 licensed acute care beds. Each year more than 43,000 people are admitted as inpatients, more than 92,000 emergency patients are treated and more than 464,000 outpatients are seen at the various facilities. More than 4,700 physicians, nurses, technologists and supporting staff serve the needs of the people who come to Jefferson University Hospital for their healthcare needs.

Jefferson continues to take pride in the quality and variety of healthcare services provided to citizens of Philadelphia and the Delaware Valley, while offering rich and varied learning experiences for the students of the University. Thomas Jefferson University Hospital is fully accredited by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and is licensed by the Department of Health of the Commonwealth of Pennsylvania.

### **The Jefferson Health System**

In 1995, Thomas Jefferson University and the Main Line Health System signed an agreement establishing a new, nonprofit, corporate entity known as the Jefferson Health System (JHS). The agreement brought together Thomas Jefferson University Hospital and Main Line Health. Since then, other established networks have joined JHS as founding members, including the Albert Einstein Healthcare Network, Frankford Health Care System, and Magee Rehabilitation.

Albert Einstein Healthcare Network operates Albert Einstein Medical Center, Germantown Community Health Services, MossRehab, Willowcrest (a center for subacute care), Belmont Behavioral Health and a number of outpatient and satellite locations. Einstein also owns a primary care network, Einstein Neighborhood Healthcare.

Frankford Health Care System's three hospital campuses are located in the Frankford and Torresdale sections of Philadelphia and in Bucks County. Frankford Hospitals also operates three ambulatory care sites as well as several primary care satellites and specialty practices.

Magee Rehabilitation is located in Center City and also operates an ambulatory satellite at Magee Riverfront in South Philadelphia.

Main Line Health is composed of Bryn Mawr Hospital, Bryn Mawr Rehab,

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Lankenau Hospital, Mid County Senior Services, Paoli Memorial Hospital, Wayne Center, and the Great Valley Health physician organization, as well as a number of ambulatory care satellites.

The members of Jefferson Health System offer health services from infancy to late adulthood, across a major geographic area. The Jefferson Health System is the largest health system in the Delaware Valley with a total of 3,692 local licensed beds and operating revenues of more than \$3 billion. The system hospitals employ nearly 27,000 individuals. JHS member hospitals offer an expanded array of clinical experience opportunities for health professions students.

## **CAMPUS FACILITIES**

The University has always been in Center City Philadelphia, having been located at or near the corner of 11th and Walnut Streets since 1828. The Jefferson campus now occupies approximately 13 acres of center city Philadelphia, bounded by Chestnut and Irving Streets to the north and south, and 9th and 11th Streets to the east and west. This address is within walking distance of a multitude of attractions, including historic points, cultural and recreational centers, sporting events, shopping areas and the Pennsylvania Convention Center.

### **Jefferson Alumni Hall**

Jefferson Alumni Hall is the basic medical science/student commons building, which houses the administrative offices of the College of Graduate Studies, the Office of Student Affairs of Jefferson Medical College, basic science departments, classrooms and research laboratories. In addition, the lower three levels, known as the Jefferson-Independence Blue Cross Wellness Center, includes recreational facilities. These facilities, which support co-curricular and recreational programs, include a fully equipped gymnasium, a weight room, a cardio room, an aerobics room, an indoor swimming pool, a sauna, a squash-racquetball court, a cafeteria, leisure lounges, a computer lab and meeting and conference rooms.

### **Samuel Parsons Scott Memorial Library/Administration Building**

The Scott Building houses University administrative offices and the University Library. Scott Memorial Library offers a full range of services in support of students' research, education and general information needs. The Library is a division of Academic Information Services and Research (AISR), which also includes Education Services, Learning Resources and Medical Media Services.

The Library is open and staffed 100 hours per week, but students have 24-hour access to workstations and the Internet. The Library's collection is considered one of the finest in the region and reflects the University's interest in the life sciences, clinical care, patient education and the history of the health sciences. The collection includes approximately 200,000 books and bound journals, more than 2,200 current periodical subscription (more than 1,000 in electronic format as well), leisure

reading materials, the University Archives and a significant holding of rare books dating to the 15th century.

The Library manages learning resources centers in the Scott Library Building, Jefferson Alumni Hall and the Edison Building. These provide access to videos, slides, anatomical models, human skeletons, and a wide variety of education technologies. The Library manages public access computing labs and classrooms within the Scott and Edison buildings and Jefferson Alumni Hall. These facilities include digital scanning equipment, PDA synchronizing workstations, laptop computers with wireless capabilities and approximately 200 public computers. Staff is available to assist students and faculty in the use of all of technologies.

### **Learning Resources Centers**

The Library manages learning resources centers in the Scott Library Building, Jefferson Alumni Hall and the Edison Building. These provide access to videos, slides, anatomical models, human skeletons, and a wide variety of education technologies. The Library manages public access computing labs and classrooms within the Scott and Edison buildings and Jefferson Alumni Hall. These facilities include digital scanning equipment, PDA synchronizing workstations, laptop computers with wireless capabilities and approximately 200 public computers. Staff is available to assist students and faculty in the use of all technologies.

### **Edison Building**

The Edison Building contains administrative offices for the Schools of Health Professions, Nursing and Pharmacy and classrooms.

### **Thomas Jefferson University Hospital, Inc.**

The Thomas Jefferson University Hospital, Inc. is a four-building complex comprised of the Thompson Building, Main Building, Foerderer Pavilion and the Gibbon Building, where emergency, in-patient and out-patient ancillary facilities and offices are centered. Some private physicians' offices are also located in the Gibbon Building. Thomas Jefferson University Hospital, Inc. is a part of the Jefferson Health System.

### **Jefferson Medical College Building**

The Jefferson Medical College Building houses the administrative offices of Jefferson Medical College, clinical departments, laboratories and lecture rooms.

### **Curtis Building**

The Curtis Building, connected to the Jefferson Medical College Building, houses offices and research facilities.

### **Bluemle Life Sciences Building**

The Bluemle Life Sciences Building is an 11-story medical research building at 10th

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and Locust Streets opened in July 1991. This facility houses the departments of biochemistry/molecular biology and microbiology/immunology. Included also are the Stein Center, Kimmel Cancer Center and Jefferson Institute for Molecular Medicine.

### **Orlowitz Residence**

The Orlowitz Residence is a 20-floor facility containing 238 apartments available to full-time students, interns, residents and fellows. The offices of the Department of Housing and Residence Life are also located here

### **Barringer Residence**

The Barringer Residence is a 10-story facility with 138 apartments occupied by Jefferson students, residents and fellows. It also has commercial tenants and a day-care center on the first floor. All apartments have recently been renovated to include sprinkler systems and new fire alarm systems.

### **James R. Martin Residence**

The James R. Martin Residence is an eight-story residence hall for students enrolled in all programs of the University. University administrative offices occupy space on the first, second and third floors, and short-term guests are housed on the fourth and fifth floors.

### **Dorrance H. Hamilton Building**

Opened in the fall of 2008, the Dorrance H. Hamilton Building is a state-of-the-art education facility. Located in the center of campus behind the Scott Library, the building contains a 300 seat auditorium, small group classrooms, clinical skills assessment center, and simulation rooms, as well as several specialty and general classrooms. The building is designed to facilitate and allow students from the various schools to learn as interdisciplinary teams simulating the true clinical environment. The building opens onto a beautifully landscaped campus green.

## **COMMUTER SERVICES/MASS TRANSIT/PARKING**

Commuter Services provides mass transit and parking information and savings on these services to eligible Jefferson students and employees. Benefits include maps and schedules of bus and rail line routes; discounts on SEPTA, New Jersey transit, and PATCO transit passes, tickets and tokens, as well as discounts with selected local parking garages.

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Mass transit items, provided at discount prices include:

SEPTA Tokens (5- and 10-packs); Trans/Trail Passes; 10-Trip Regional Rail Line Tickets; and Day Passes

PATCO 2- and 10-Trip Tickets

NJ Transit One-way and Monthly Tickets Discounted Campus Area Parking: Restricted daily and limited monthly parking is available at several locations on or near campus.

The Commuter Services Office is located in the Jefferson Bookstore at 1009 Chestnut Street. The hours of operation are Monday through Friday from 7:00 a.m. to 5:30 p.m. and from 9:00 a.m. to 1:00 p.m. on Saturday. The store is closed on Sunday and all University holidays. For more information call (215) 955-6417 or visit Commuter Services online at [www.jefferson.edu/cso](http://www.jefferson.edu/cso).

## **LOCATION AND ACCESS**

Local commuter transportation is comprehensive and makes all of Greater Philadelphia easily accessible. The proximity of the New Jersey shore and the Pennsylvania mountains offers year-round recreational opportunities, and New York City and Washington, D.C. are just a few hours away.

# Admission to the School

## **ADMISSION TO THE SCHOOL**

The Jefferson School of Pharmacy (JSP) pledges to consider all candidates for admission without regard to race, color, national and ethnic origin, religion, age, marital status, sex, sexual orientation, disability or veteran's status.

### **ADMISSION REQUIREMENTS**

The JSP is a career-oriented, clinical doctorate degree program that offers professional study mainly to students who have completed approximately two to four years of prerequisite coursework at an accredited college or university. Please refer to "Transfer of Credits from Other Institutions" later in this section for specific details regarding the School's policy on transfer credits.

Students must successfully complete the following coursework prior to beginning the Doctor of Pharmacy program at the JSP:

- a minimum of 68 credit hours of prepharmacy coursework.
- the following basic science and math courses are required: Anatomy and Physiology I and II, Biology I and II, Calculus I, Chemistry I and II, Organic Chemistry I and II, Physics I and II, and Microbiology (all of the previous courses require a laboratory component). These courses must have been completed within five years of admission to the JSP. Students are also required to have completed a College Composition course, 9 credit hours of Social Science coursework and 9 credit hours of coursework in the Humanities.

Students must have achieved the following through their prepharmacy coursework:

- a minimum cumulative GPA of 2.7 on a 4.0 scale.
- no grade lower than a C in any of the required basic science and math courses.

### **APPLICATION PROCEDURES**

The JSP practices a rolling admissions policy which is divided into Admissions Review Periods i.e. as applications are completed, they are processed and candidates are notified of the Committee's decision. Acceptance to the school occurs on a rolling bases once the entire application process is complete, therefore it is advantageous to file the application early.

The School considers prospective students for admissions only after their application packet is complete. A completed application packet includes a PharmCAS

application, PCAT scores from within the past 2 years, 2 letters of recommendation and a completed Jefferson Supplemental application (see below).

Steps for application include the following:

1. Apply to PharmCAS and submit required materials.
  - Complete an online application for admission through PharmCAS at [www.pharmcas.org](http://www.pharmcas.org)
  - Send PCAT scores to PharmCAS using code 104
  - Deadline: March 1, 2012
2. All prospective students who complete the PharmCAS application for the JSP are also required to complete a supplemental Jefferson application. The Jefferson Department of Admissions will send an email with a link to the online application along with a logon id once the pharmacy application from PharmCAS has been downloaded. Jefferson will send a second email with a PIN to access the supplemental application.
3. The JSP will continue to review applications until the incoming Fall class is filled. Applications are not considered complete until the PharmCAS application (including letters of recommendation) is complete and PCAT scores are available.
4. Find more information about Open Houses and On-Campus Events at <http://www.jefferson.edu/jchp/admissions/events.cfm>

Prior to admission to the Doctor of Pharmacy Program, qualified applicants must participate in an interview on the Jefferson campus which will evaluate the prospective students':

- demonstration of English language proficiency and verbal communication skills;
- understanding of the pharmacy profession; and,
- commitment to patient care

The JSP Admissions Committee will initiate the interview appointment after the candidate's credentials have been received and reviewed.

## **SELECTION**

The responsibility for determining the admission of candidates is vested in the JSP's Committee on Admissions. Criteria for selection include the strength of the

academic record (with particular emphasis on performance in science and math courses), work and/or volunteer experience, PCAT scores, recommendations and strength of the interview. Personal characteristics are important, particularly the ability to function in a team-based healthcare setting.

### **SPECIAL NOTE REGARDING ELIGIBILITY FOR CERTIFICATION OR LICENSURE, CRIMINAL BACKGROUND AND CHILD ABUSE CLEARANCES**

Students who are offered admission to Jefferson are required to have a criminal background check and child abuse clearance. Complete instructions on obtaining and forwarding these documents will be provided to students who are offered admission.

Regardless of whether or not a student graduates from Jefferson, individuals who have been convicted of a felony or misdemeanor may be denied certification or licensure as a health professional. Information regarding individual eligibility may be obtained from the appropriate credentialing bodies.

### **ADMISSION OF VETERANS**

Veterans are admitted under the same general requirements as non-veterans. Career counseling services are available. Special problems regarding the credentials of veterans should be discussed with the Associate Dean for Student Affairs.

### **ADMISSION OF NON-U.S. CITIZENS**

Students from outside the United States are welcome to apply for admission to all College programs. All academic credentials from foreign universities must be submitted to World Education Services for a course-by-course evaluation. The cost of evaluation is the responsibility of the applicant. Three to four weeks should be allowed for processing the evaluation. A 10-day special rush order may be processed for an additional fee. To request an application for the evaluation, students may write:

World Education Services  
P.O. Box 745 Old Chelsea Station  
New York, NY 10113-0745  
(212) 966-6311  
[www.wes.org](http://www.wes.org)

All international students and U.S. permanent residents must demonstrate English language proficiency as *one* of the conditions for admission to the Jefferson School of Pharmacy. The School will accept any one of the following items to satisfy the proficiency requirement:

Internet-based Test of English as a Foreign Language (TOEFL) with an overall score of at least 87 and individual section scores as follows: Writing – 21, Speaking – 23, Reading – 21 and Listening – 22. *Do not include the scores in the self-managed application envelope. Request official scores to be sent to JCHP.*

The College Board

P.O. Box 592 Princeton, NJ 08540

(609) 862-6601

[www.ets.org/toefl/](http://www.ets.org/toefl/)

- Baccalaureate degree or higher from an accredited U.S. college or university.
- U.S. national or state licensure or certification in a nursing or allied health field.\*
- Native English speaker from one of the following countries: Australia, Canada, Ireland, New Zealand, South Africa or United Kingdom.

\*Certain certification may not be sufficient to demonstrate proficiency.

Because the School does not have financial aid funds available for non-resident aliens, candidates must file an affidavit of financial support, certifying that they have sufficient funds to cover the costs of attending the School. Thomas Jefferson University is authorized under Federal law to enroll nonimmigrant alien students.

## **REAPPLYING TO THE SCHOOL**

Students who have been denied admission to the School or who have withdrawn their application may reapply within one year for a new term. Students who wish to reapply must submit a new application. Students must be able to provide additional documentation, which may include new transcripts, recommendation letters and personal statement, in support of their candidacy to the Committee on Admissions.

## **TRANSFER OF CREDIT FROM OTHER INSTITUTIONS**

### **For Admissions Purposes**

Transfer credit may be awarded by the School for course work taken at a college or university accredited by organizations recognized by the U.S. Department of Education in which a grade of ‘C’ or better (pass/fail and ‘C-’ courses are not acceptable) has been achieved and that meets specific program requirements. However, science courses that were completed 5 or more years prior to enrollment in the School will not be accepted for transfer credit without additional validation, which may include work experience in a science-based field.

The course and credit evaluation is the responsibility of the Associate University Registrar, in consultation with the Office of Admissions and appropriate program heads.

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## **For Coursework Required as Part of the Degree Program**

The detailed Policy and Procedure for the transfer of credit for upper division professional courses requires approval of the Associate Dean for Academic Affairs and can be located in the JSP Student Handbook.

Official transcripts of credits earned at other colleges and universities must be submitted to the Office of the University Registrar. To maintain full-time status, students who receive transfer credit for required curricular courses must register for at least nine semester credits. To be considered for transfer credit, course work taken at another institution while a student is enrolled in JSP must have prior written approval of the Associate Dean for Academic Affairs.

### **CREDIT BY EXAMINATION**

Students who have received college credits at their previous institutions on the basis of the College Board Advanced Placement (AP) Examinations may transfer these credits to the College. Credit will be awarded for acceptable scores on the General and Subject Examinations of the College Level Examination Program (CLEP). Information on acceptable scores may be found in the Academic Regulations chapter of this Catalog. Additional information on CLEP tests can be obtained by contacting the Office of Admissions and Enrollment Management.

### **PHYSICAL EXAMINATION**

All students accepted into the School are required to have the Student Health Service Form completed by their personal physicians. All necessary examinations and reports must be completed and sent to the Director of University Health Services at least two weeks prior to registration. Pre-existent problems are subject to evaluation by the Director of University Health Services, and these must be corrected and/or controlled at the applicant's expense.

### **VISITS TO THE CAMPUS**

The Office of Admissions and Enrollment Management welcomes visits from interested students and their families. Information sessions are conducted on a regular basis for each of the health professions programs. In order to provide the services usually requested by visitors, appointments should be made at least one week in advance. Office hours are from 9:00 a.m. to 5:00 p.m., Monday through Friday.

On-campus information sessions regarding the health professions programs are regularly scheduled throughout the year. Dates and times are available from the Office of Admissions and Enrollment Management.

### **INQUIRIES**

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Individuals may receive further information about the Doctor of Pharmacy program by contacting:

Office of Admissions and Enrollment Management  
Thomas Jefferson University  
130 S. 9th Street, Suite 100  
Philadelphia, PA 19107-5233  
(215) 503-8890 or Toll Free 1-877-JEFF-CHP

Request information online at:

<http://www.jefferson.edu/jchp/admissions/reqinfo.cfm?program=ALL>

E-mail: [JCHP@jefferson.edu](mailto:JCHP@jefferson.edu)

Website: [www.jefferson.edu/jchp](http://www.jefferson.edu/jchp)

# Financial Aid

## **FINANCIAL AID**

### **GENERAL INFORMATION**

The School recognizes that a major concern of many students is the financing of their education and attempts to help those students with demonstrated financial need to meet the cost of their education.

Although every attempt is made to assist students, it is the School's philosophy that the primary responsibility for the cost of college education rests with students and their families. Because education is an investment that yields lifelong dividends, both students and their families should be prepared to contribute and to provide financial support. Financial aid is intended to supplement the best efforts of the students and their families

### **FINANCIAL AID PROCESS**

Financial aid is available to qualified students who are matriculated in degree and post-baccalaureate certificate programs. Financial aid awards are based on each student's financial need, enrollment status, housing status, level of program funding and maintenance of satisfactory academic progress. A student's financial need is computed as the cost of education minus the expected family contribution as determined through the Federal Methodology.

The Free Application for Federal Student Aid (FAFSA) is used to determine financial need. These forms are confidential statements of income and assets for both students and families. The information is analyzed to determine the financial strength of the applicant in terms of income, assets, liabilities, size of family, number of family members in post-secondary education, age of parents, etc. The aim is to make the expectations for the family contribution as equitable as possible for each applicant.

The School assumes that the first financial aid resource that all students should consider is the Federal Subsidized Stafford Loan. If, after obtaining the Federal Subsidized Stafford Loan, need still exists, the University Office of Financial Aid will assist the student in determining the appropriate combination of loans, grants and work study to make a Jefferson education possible.

Students will be notified of their specific eligibility for aid through a financial aid award. Notification of aid awards usually begins four to five months prior to the start of the academic term. Awards may not be determined unless a financial aid file is complete and all student and parent information has been verified.

If a student demonstrates financial need, but is ineligible for federal grants or loans due to default on a prior educational loan and/or negative credit rating, Thomas Jefferson University will not commit institutional funds to remedy the default or

negative credit status, or to compensate for the ineligibility for federal funds. The student is ultimately responsible for resolving all problems involving loan delinquencies, defaults, and/or any other circumstances that would result in the student being ineligible to borrow through any loan program.

## **STUDENT EXPENSE BUDGET**

A student's budget is divided into two categories – direct and indirect costs. Direct costs are paid directly to the School and are standard for each student. Indirect costs vary from student to student, depending on factors such as academic major, personal life-style and distance from home to campus.

## **APPLICATION PROCEDURE**

Any student who is concerned about the ability to meet educational expenses at Thomas Jefferson University should apply for aid. Eligibility for assistance varies from program to program. Families may be eligible for some sources of aid that they may not have anticipated. To avoid possible delays in receiving an award, students are urged to comply with all application deadlines. Students should adhere to financial aid application deadlines even if an admissions decision has not been made.

The School expects all aid applicants to file the following documents before the financial aid deadline:

Free Application for Federal Student Aid (FAFSA).

Jefferson Application for Financial Aid.

- Signed copies of the parents', student's and/or spouse's most recent U.S. Income Tax Forms with all accompanying schedules. If tax returns are not filed, a Non-Tax Filing Statement must be filed. This form is included in the Financial Aid Application Packet and online via Banner Web.

Jefferson Verification Worksheet

The Jefferson Financial Aid Guide is routinely sent to every student applying for admission to the pharmacy program. The Guide is accompanied by important information about applying for financial aid. Accepted students will be permitted to apply for financial aid online. An informational email is sent to all accepted students starting in December/January with Banner Web online application instructions. However, students may request that a paper financial aid application be mailed after a designated date. It is important for students to begin and complete the application process in a timely manner. A file may not be reviewed until all information is received.

Students must be matriculated in a degree or post-baccalaureate certificate program on at least a half-time basis to be eligible for financial aid. The amount of aid a student may receive is determined by the number of credits attempted and the tuition costs.

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Students seeking to qualify as self-supporting or independent must meet strict Federal requirements. Consult the University Office of Financial Aid before filing as an independent student to ensure proper completion of the forms.

Specific information regarding disbursement of funds and other award-related information is contained in the Financial Aid Handbook. All aid recipients will be sent a handbook with their award notices. Other students may receive a copy of the Financial Aid Handbook by requesting one in writing from the University Office of Financial Aid or by accessing the online Financial Aid Handbook at [http://www.tju.edu/financialaid/chp\\_students.cfm](http://www.tju.edu/financialaid/chp_students.cfm).

## **RENEWAL OF AID**

Students must apply each year for financial assistance. Renewal of aid is not automatic. Financial need is determined each year based on changes of family circumstances as well as the School's fees and funding levels. Because federal, state or institutional policies may change each year, students who did not receive aid in previous years are still encouraged to apply for aid the following year. A change in circumstances may enable the returning student to qualify for assistance.

## **FINANCIAL AID DEADLINE**

The priority deadline for completing a financial aid file is May 1 for all new students (except those beginning a program of study in January) and March 3 for all returning students. The deadline for students beginning their program of study in January is August 1. Applications completed after the deadline will be considered if funds are available. Students should complete the necessary forms as soon as they are available in order to meet all deadlines. (Please Note: The needs analysis forms may require two to three weeks for processing.)

## **AID PROGRAMS**

Financial aid awards usually consist of a "package" of three basic types of financial assistance: non-repayable gift or grant assistance, student loans and student employment. Financial assistance comes from three major sources: federal, state and Jefferson-administered programs. These major programs are described below:

### **Federal Sources of Aid**

#### **Federal Pell Grant**

The Federal Pell Grant program is designed to provide assistance to undergraduate students. Federal Pell Grants are intended to be the foundation of a financial aid package and may be combined with other forms of aid in order to meet the costs of education. The amount of the Federal Pell Grant is determined on the basis of the financial resources of the student and family, the student's enrollment status and the cost of education. Awards for the 2007-2008 academic year may range up to a maximum of \$4,350. Federal Supplemental Educational Opportunity Grant (SEOG)

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This program provides grant assistance for Pell-eligible undergraduate student with exceptional financial need. The amount of assistance a student can receive depends on need, the availability of Federal SEOG funds and the amount of other aid a student receives. Recipients are selected by the University Office of Financial Aid in accordance with Department of Education guidelines.

#### Federal Work Study Program (FWS)

This program provides funding for jobs for undergraduate and graduate students who have financial need and want to earn funds to cover a part of their educational expenses. Employment opportunities are provided on campus. The College also offers opportunities in community service as part of the FWS program. The FWS award a student receives depends on need, availability of FWS funds and the amount of aid received from other programs. The administration of this program is in accordance with the guidelines published by the Department of Education.

#### Federal Family Education Loan Program

- Federal Subsidized Stafford Loan
- Federal Unsubsidized Stafford Loan
- Federal PLUS Loan
- Federal Graduate PLUS Loan

This program provides long-term, low-interest student loans available through the cooperative efforts of federal and state governments and participating private lending institutions. These loans are available to students enrolled in an institution of higher learning on at least a half-time basis. Students should contact the University Financial Aid Office to obtain the necessary application information or go to the Financial Aid Office website [www.jefferson.edu/financialaid](http://www.jefferson.edu/financialaid). For students whose loans were first disbursed on or after July 1, 2006, the interest rate is fixed at 6.8 percent. Repayment of these loans begins six months after the student ceases to be enrolled on at least a half-time basis, graduation, or withdrawal from school. A four-to-six week processing period should be anticipated for all Federal Stafford Loan applications.

#### Annual Maximum Federal Stafford Loan

The total Federal Stafford Loan debt for graduate or professional students is \$65,500. Graduate students may apply for up to \$20,500 a year with at least \$12,000 from the unsubsidized program.

Students must demonstrate financial need to qualify for a Federal Subsidized Stafford Loan. For periods of enrollment beginning on or after October 1, 1992, students who do not demonstrate financial need may qualify for an unsubsidized Federal Stafford Loan. The Federal government pays the interest on a subsidized

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Federal Stafford Loan while the student is enrolled. However, interest accrues to the student's loan account on an unsubsidized Federal Stafford Loan starting from the date the funds are disbursed. Payment of principal and accrued interest may be postponed until six months after the student ceases to be enrolled on at least a half-time basis, graduation, or other cessation of enrollment.

### Federal Graduate PLUS Loan Program

The Federal Graduate PLUS loan program makes loans available to pay for the costs of study at post-secondary schools. Under the Federal Graduate PLUS program, graduate students are eligible to borrow this credit-based loan on their own merit. Loan funds may be used only to pay for students' educational costs. If eligible, students may borrow up to the student's annual estimated cost of attendance minus the estimated annual financial assistance. The interest rate for Federal Graduate PLUS loans disbursed on or after July 1, 2006 is 8.5 percent. This is a fixed interest rate.

### Federal Perkins Loan

This program provides a five percent interest loan to undergraduate and graduate students who demonstrate financial need. Depending on when the student applies, the student's level of need and the school's funding level, undergraduates may be awarded up to \$4,000 per year and graduate students may be awarded up to \$6,000 per year. The loans are interest-free while the student is enrolled on at least a half-time basis. The maximum repayment period of 10 years, begins nine months after the student ceases to be enrolled on at least a half-time basis. Under certain federally approved circumstances, borrowers may defer loan repayment and/or have a portion of their loans cancelled. Borrowers should note both deferment and cancellation provisions when negotiating the loan. Recipients are selected by the University Office of Financial Aid in accordance with guidelines published by the Department of Education.

## **State Sources of Aid**

### State Grants

All students are required to apply to their state grant program to determine any eligibility they may have for state funds. Applications for state grants are made by completing the Free Application for Federal Student Aid (FAFSA) by the deadline specified by their state

### New Jersey Residents

New Jersey residents may obtain grant funds to attend colleges in Pennsylvania on a very limited basis. New Jersey residents should contact their state agency for further information regarding their eligibility.

Higher Education Student Assistance Authority (HESAA)

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PO Box 540  
Trenton, NJ 08625  
(800) 792-8670 [www.hesaa.org](http://www.hesaa.org)

### Other States

Students from other states can obtain state grant assistance to attend a college outside their state of legal residence on a limited basis. Non-Pennsylvania residents should contact their state agency for further information regarding their eligibility.

### **Jefferson Sources of Aid**

#### Thomas Jefferson University and School Grants and Loans

Grants and low interest loans are available to students who exhibit financial need and potential for academic achievement. Application for these funds is made by completing the Financial Aid Application process outlined previously in this section.

### **Additional Sources of Aid**

The University also administers a variety of private scholarship and loan programs for students who demonstrate financial need and/or meet the guidelines set forth by the benefactor. Students who complete the required TJU financial aid application process will be considered for the programs for which they meet the eligibility criteria. The number of recipients and the amount awarded will be determined by the level of available funding.

### **Other Possibilities**

In addition to programs of aid previously described, financial assistance may be obtained from a wide variety of sources. Since application procedures and requirements differ greatly, it is not possible to provide specific information. In general, the student seeking potential sources of aid should refer to: 1) the University Office of Financial Aid; 2) library publications; 3) parents' employers or labor unions; 4) fraternal, social, religious or professional organizations; 5) major organizations utilizing the skills of the field for which the student is preparing and 6) the Worldwide Web.

Students should investigate all sources of financial aid for which they may be eligible. The University Office of Financial Aid will provide assistance in completing any of these applications. The Office of Financial Aid also produces a booklet entitled Private and Professional Sources of Financial Assistance. Students may view this publication by going to [http://www.tju.edu/financialaid/chp\\_students.cfm](http://www.tju.edu/financialaid/chp_students.cfm) .

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**INQUIRIES**

Students who have additional questions or problems or who wish to schedule an appointment with a financial aid officer can write or call:

University Office of Financial Aid  
Thomas Jefferson University  
Room G-1 College Building  
1025 Walnut Street  
Philadelphia, PA 19107-5233  
(215) 955-2867  
E-mail: [Financial.aid@jefferson.edu](mailto:Financial.aid@jefferson.edu)  
Website: [www.jefferson.edu/financialaid](http://www.jefferson.edu/financialaid)

Office hours are 8:30 a.m. to 5:00 p.m., Monday through Friday.  
Programs of financial aid described herein are subject to change without notice due to federal, state, local or institutional regulations or funding.

# Jefferson School of Pharmacy

## **JEFFERSON SCHOOL OF PHARMACY**

### **DOCTOR OF PHARMACY PROGRAM**

In March 2006 the Board of Trustees of the Thomas Jefferson University (TJU) approved a plan committing the resources for the establishment of the Jefferson School of Pharmacy (JSP). The 4-year Doctor of Pharmacy Program commenced with its inaugural class in the Fall 2008 semester.

#### **MISSION**

The JSP mission is to prepare our students for careers in the profession of pharmacy. Through the provision of a learner-centered, interdisciplinary curriculum, our students will develop the requisite knowledge, skills and attitudes to provide excellent patient-centered and population-based care. Consistent with the mission of TJU, we strive to develop in our students a sense of social, personal and professional responsibility.

#### **VISION STATEMENT**

The JSP will consistently demonstrate its ability to provide a superb environment that fosters collaborative relationships with healthcare practitioners and scientists that result in the advancement of patient care and safety, educational methodologies and research. It will be recognized as a premier organization that advances the profession of pharmacy through our graduates and our faculty.

- Our graduates will be recognized for their: ability to provide outstanding patient-centered and population-based care; leadership skills; cultural competency; social responsibility; and commitment to maintaining professional competence throughout their careers.
- Our faculty will be recognized for their: strong commitment to the advancement of pharmacy and graduate education, patient care and research; leadership in the professional societies and educational organizations; and strong commitment to the improvement of our community through service initiatives.

#### **JSP CORE VALUES**

We are committed to:

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- maintaining a culture that fosters integrity, respect, social responsibility, diversity and compassion;
  - a learner-centered educational environment that recognizes the importance of lifelong learning;
  - meeting the diverse needs of and fostering positive morale among our students, faculty and staff;
  - preparing and encouraging our students to pursue postgraduate education and training programs;
  - the continued professional development and mentoring of our students, faculty and staff;
  - the development of leadership skills among students, faculty and staff;
  - a research-rich environment that stimulates the advancement of science, patient care and safety, and educational effectiveness; and,
  - maintaining an ongoing assessment program that results in the continuous improvement of our educational program, research endeavors and infrastructure in an effort to support our mission and vision.

## **ACCREDITATION DISCLOSURE STATEMENT**

The Accreditation Council for Pharmacy Education (ACPE) accredits Doctor of Pharmacy programs offered by Colleges and Schools of Pharmacy in the United States and selected non-US sites. For a Doctor of Pharmacy program offered by a new College or School of Pharmacy, ACPE accreditation involves three steps: Precandidate status, Candidate status, and Full accreditation. Precandidate accreditation status denotes a developmental program, which is expected to mature in accord with stated plans and within a defined time period. Precandidate status is awarded to a new program of a College or School of Pharmacy that has not yet enrolled students in the professional program, and authorizes the college or school to admit its first class. Candidate accreditation status is awarded to a Doctor of Pharmacy program that has students enrolled, but has not yet had a graduating class. Full accreditation is awarded to a program that has met all ACPE standards for accreditation and has graduated its first class. Graduates of a class designated as having Candidate status have the same rights and privileges of those graduates from a fully accredited program, generally including eligibility for licensure. ACPE conveys its decision to the various boards of pharmacy and makes recommendations in accord with its decisions. It should be noted, however, that decisions concerning eligibility for licensure, by examination or reciprocity, reside with the respective boards of pharmacy in accordance with their statutes and administrative rules.

The Doctor of Pharmacy program of the Thomas Jefferson University, Jefferson School of Pharmacy was awarded Candidate accreditation status during the June 24 - 28, 2009 meeting of the ACPE Board of Directors, based upon an on-site evaluation

conducted March 24 - 26, 2009, and discussion with University, College, and School officials. It is anticipated that full accreditation of the Doctor of Pharmacy program will be considered by the Board following the graduation of students in May 2012 from the program.

Updated information regarding the Jefferson School of Pharmacy accreditation status will be found at <http://www.jefferson.edu/jchp/pharmacy/> when available.

## Program Objectives

Upon completion of the Doctor of Pharmacy Program, our graduates will demonstrate the following in functioning as effective members of the health care team in the provision of patient-centered and population-based care.

- The knowledge, understanding and application of the biomedical, pharmaceutical, social, behavioral, administrative and clinical sciences.
- The ability to think critically and problem solve.
- Effective communication through both written and verbal means.
- The highest level of professional, legal and ethical behavior.
- The professional acumen to identify and analyze emerging healthcare issues.
- A working knowledge of how legislation, regulations and related programs affect the practice of pharmacy.

## THE CURRICULUM

The following curriculum is subject to change by the faculty through the approval of the JSP Educational Policy and Philosophy committee. For current information regarding the Doctor of Pharmacy Curriculum, please see <http://www.jefferson.edu/jchp/pharmacy/>.

The delivery of the Doctor of Pharmacy curriculum will include a variety of educational methods including didactic lectures, small group discussions, technology applications both within and outside the classroom, application of new skills, and experiential education in various pharmacy practice sites. Please note that IPPE, below, refers to Introductory Pharmacy Practice Experience and APPE refers to Advanced Pharmacy Practice Experience.

### *First Year*

FALL SEMESTER	<i>Semester Credits</i>
Biochemistry	3
Immunology	3
IPPE: Healthcare Service Learning or	

IPPE: Community Pharmacy	1
Health Care Communications and Patient Counseling	2
Health Care Delivery Systems	2
Pathophysiology I	3
Pharmacy Practice I	1
Preventive Healthcare and Self Care Issues	<u>2</u>
	17
SPRING SEMESTER	
Biostatistics	3
IPPE: Healthcare Service Learning or IPPE: Community Pharmacy	1
Medicinal Chemistry	2
Molecular and Cell Biology	3
Pathophysiology II	3
Pharmacy Practice II	1
Physical Assessment and Clinical Skills	<u>3</u>
	16
<i>Second Year</i>	
FALL SEMESTER	
Drug Information and Literature Evaluation	3
IPPE: Hospital Pharmacy or IPPE: Ambulatory Care	1
Medication Safety	2
Pharmaceutics and Drug Delivery Systems	3
Pharmaceutics Laboratory	1
Pharmacology I	3
Pharmacy Management: Theory and Applications	3
Pharmacy Practice III	<u>1</u>
	17
SPRING SEMESTER	
Biopharmaceutics and Principles of Clinical Pharmacokinetics	3
Clinical Diagnosis/Pharmacotherapy I and II	4
IPPE: Hospital Pharmacy or IPPE: Ambulatory Care	1
Pharmacology II	3
Pharmacy Practice IV	1
Pharmacy Practice Laboratory I	1
Professional Elective(s)	<u>3</u>
	16

*Third Year*

## FALL SEMESTER

Clinical Diagnosis/ Pharmacotherapy III and IV	6
IPPE: Direct Inpatient Care or IPPE: Elective Site	2
Pharmacology III	3
Pharmacy Grand Rounds	2
Pharmacy Practice Laboratory II	1
Professional Elective(s)	<u>3</u>
	17

## SPRING SEMESTER

Clinical Diagnosis /Pharmacotherapy V and VI	6
Integrated Practice Applications	1
IPPE: Direct Inpatient Care or IPPE: Elective Site	2
Pharmacoeconomics and Health Outcomes	3
Pharmacy Practice Laboratory III	1
Professional Seminar I	2
Professional Elective(s)	<u>3</u>
	18

*Fourth Year*

APPEs (6 weeks each, 40 hours per week)	
Community Pharmacy	6
Hospital Pharmacy	6
Ambulatory Care	6
Direct Inpatient Care	6
Direct Patient Care Elective	6
Direct or Indirect Patient Care Elective	6
Pharmacy Law	1
Professional Seminar II	<u>2</u>
	39

Total Credits for the Doctor of Pharmacy Degree 140

**Important Notice**

Individuals who have been convicted of a felony or misdemeanor may be denied certification or licensure as a health professional. Information regarding individual eligibility may be obtained from the appropriate credentialing bodies. Clinical rotation or experiential education sites may require a criminal background check and/or child abuse check in order to permit participation in the clinical experience or

rotation. Participation in clinical experiences or rotations is a required part of the curriculum and a requirement for graduation. Clinical rotation and rotation sites may deny a student's participation in the clinical experience or rotation because of a felony or misdemeanor conviction, failure of a required drug test, or inability to produce an appropriate health clearance, which would result in delayed graduation or in the inability to graduate from the program.

### **Student Academic and Clinical Performance**

Specific policies on academic and clinical regulations such as passing grades, acceptable performance, academic probation and dismissal, failure in clinical performance, grade appeal protocol, incomplete grades, criteria for graduation, ethical behavior, attendance, withdrawal from courses, withdrawal from the program, refund of tuition and code of conduct are described in detail in the Jefferson School of Pharmacy Student Handbook. Questions about policies can be discussed with the student's faculty advisor. Please note that the minimum passing grade is a C in letter-graded courses and a pass in all pass/fail courses and that students must have a minimum cumulative grade point average of 3.0 for graduation. If the student's cumulative GPA falls below 3.0 for more than two semesters (consecutive OR nonconsecutive) during their tenure in the Doctor of Pharmacy program, he/she will be dismissed from the program.

## **SCHOOL OF PHARMACY COURSE DESCRIPTIONS**

### ***REQUIRED COURSES***

#### **First Year**

##### **Biochemistry (3) PHRM 510**

This biochemistry course describes the chemistry and metabolism of carbohydrates, lipids, and proteins. It also addresses blood clotting and selected topics of the production and degradation of blood cells.

##### **Biostatistics (3) PHRM 511**

This course will provide an understanding of commonly used research methods and statistical tests, the skills needed to manage data sets and evaluate statistical results, and the knowledge necessary to apply the concepts of statistical versus clinical significance to practice. The course is a practical approach to using statistical tests in a research framework. The focus of the course is on enabling students to become consumers of the research literature rather than biostatisticians.

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**Healthcare Communications and Patient Counseling (2) PHRM 524**

Healthcare communications and patient counseling provides the foundation to effectively communicate both verbally and in writing with other healthcare professionals and patients. The course addresses such topics as health literacy, influence of culture on communicating healthcare information, principles of behavior modification, active learning, empathy, and interviewing techniques.

**Healthcare Delivery Systems (2) PHRM 519**

Provides an introduction to the U.S. health care delivery system; addresses the social, political, and economic context of U.S. health care, the distribution of medical care and pharmaceutical products and services, as well as the role of public and private insurers, pharmaceutical industry, and managed care organizations on health care delivery in the U.S.

**Immunology (3) PHRM 525**

Introduces students to the immune system as an adaptive defense system that recognizes invading pathogenic organisms and mounts a response to eliminate or neutralize foreign infectious agents. Students will be introduced to the molecules, the cells and organs, and the processes involved in host defense against infection. An overview of basic principles, concepts, and techniques used to assess immune status will be presented that will be necessary for further exploration into related topics in immunology-based pharmacology and therapeutics.

**IPPE: Healthcare Service Learning (1) PHRM 522**

The purpose of this course is to foster a sense of community involvement and instill a basic understanding of pharmaceutical care in P1 students through healthcare related service. The course focuses on identifying and addressing human and community needs and will provide students the opportunity to practice basic skills required to provide pharmaceutical care. The course is conducted at service sites in Philadelphia and surrounding counties. Healthcare related community service sites include, but are not limited to: wellness centers, homeless shelters, senior centers and clinics for the underserved. Experiences at the site may incorporate knowledge gained and skills and attitudes developed in the P1 didactic coursework, as well as the Community Pharmacy IPPE course, depending upon which semester the P1 IPPEs are assigned.

**IPPE: Community Pharmacy (1) PHRM 523**

The purpose of the course is to instill in a basic understanding of community pharmacy practice through site-based experiences. The course is conducted in outpatient, community pharmacies located in Philadelphia and its surrounding counties. Experience at the site may incorporate knowledge gained and skills and

attitudes developed in the P1 didactic coursework, as well as the Healthcare Service Learning IPPE, depending upon which semester the P1 IPPEs are assigned.

### **Medicinal Chemistry (2) PHRM 513**

Medicinal chemistry addresses the physicochemical properties of drug molecules, the chemical basis of pharmacology and therapeutics, fundamental pharmacophores for drugs used to treat disease, structure-activity relationships pertaining to drug-target interactions, and chemical pathways of drug metabolism. The main objective of the course is to understand how the chemical structures of drugs determine their biological properties, including absorption, distribution to sites of action, interactions with pharmacological targets, metabolic inactivation, forms and routes of elimination, and therapeutic potential. The course is designed to include basic chemical concepts that govern drug action, general principles of medicinal chemistry, and chemical characteristics of selected drug classes. Students will also gain an understanding of how these principles can be generally applied to making drug therapy decisions. Learning activities in the course consist primarily of lectures, recitations, problem-solving exercises, and quizzes with feedback review.

### **Molecular and Cell Biology (3) PHRM 520**

This molecular and cellular biology course contains instruction on nucleotide metabolism, the classic concept of DNA to RNA to protein, the structure and behavior of cells, and the major modes of inheritance. This course will prepare students for topics that are covered in the Pathophysiology and Clinical Diagnosis/Pharmacotherapy courses.

### **Pathophysiology I (3) PHRM 514**

Provides an understanding of the basic principles and mechanisms of disease, including: inflammation and repair; degeneration; hemodynamic disturbances; and developmental defects. This level of understanding will be applied in addressing disease states amenable to pharmacist intervention. In addition, medical terminology will be learned and applied to the course content.

### **Pathophysiology II (3) PHRM 515**

Continues to provide an understanding of the basic principles and mechanisms of disease, including: inflammation and repair; degeneration; hemodynamic disturbances; developmental defects; and neoplasia. This level of understanding will be applied in addressing disease states amenable to pharmacist intervention. In addition, medical terminology will be learned and applied to the course content.

### **Pharmacy Practice I (1) PHRM 516**

Provides an overview of the pharmacy profession and the history of pharmacy as well as discussion surrounding what it means to be a professional. Pharmacy law, as

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it relates to the IPPE courses, will be introduced to the student. Ethical principles will be introduced, discussed, and applied to cases presented in this course and continued through the pharmacy practice course series. Student participation in the Jefferson Health Mentors Program will be encompassed within this course series.

### **Pharmacy Practice II (1) PHRM 517**

This course provides an overview of the pharmacy profession in healthcare reform. Continued reflection regarding what it means to be a professional will occur. Other social and behavioral aspects of pharmacy will be addressed through class discussions and the Jefferson Health Mentors program and will include patient and other healthcare provider perceptions of pharmacists' capabilities, role of the pharmacist related to patient care, and role of the pharmacist related to interaction with other healthcare providers.

### **Physical Assessment and Clinical Skills (3) PHRM 526**

Physical assessment and clinical skills provides the student with knowledge and preliminary application of the skills necessary for obtaining a comprehensive patient history and problem identification. Students will learn to design patient-centered, culturally relevant pharmacy care plans and appreciate the role of these plans in patient care. Students will learn and perform basic assessment techniques and the skills necessary for triage and referral. This course will also provide an introduction to the role of home diagnostic and monitoring devices in the diagnosis, staging, and monitoring of various disease states.

### **Preventive Healthcare and Self-Care Issues (2) PHRM 512**

This course focuses on disease prevention and wellness promotion through health screening, lifestyle modification, vaccines, and the use of other nonpharmacologic therapies. It evaluates the role of nonprescription drug therapies and dietary supplements in preventive healthcare and patient self-care.

## **Second Year**

### **Biopharmaceutics and Principles of Clinical Pharmacokinetics (3) PHRM 535**

The fate of a medication in the body is determined by several key factors that include the dosage form or delivery system, the route of administration or site of delivery, the chemical structure of the active ingredient, and the functional status of the patient's biological systems. Dissecting and modeling the interplay among these factors is the purview of biopharmaceutics and pharmacokinetics. The knowledge and algorithms derived from such exercises are routinely applied to facilitate dosage form design, to predict medication dosing regimens, and to optimize treatment protocols for individual patients based on their specific profiles. This course is designed to include key mathematical, physicochemical, and biological principles

that govern the fate of a dosage form or its active ingredient as it traverses the many varied barriers between the site of administration, the site of action, and the site and mode of elimination. Learning activities in the course consist primarily of lectures, discussions, and problem-solving exercises or assignments.

### **Clinical Diagnosis/Pharmacotherapy I**

#### **Introductory Pharmacotherapy Principles/Renal Module (2) PHRM 540**

This is the first course in the series that builds upon knowledge and skills that have been acquired in Medicinal Chemistry, Pharmacology I, Pathophysiology I and II, and other basic and clinical science courses. This course will allow the learner to develop and apply critical thinking skills toward the management of patients with renal disorders. The course is designed to be active learning via case-based discussions. Students will be provided patient cases to work up covering renal disorders. Students will utilize the instructional resources (e.g. textbook, podcasts, journal articles, guidelines, etc) to work through the cases prior to class and come prepared to actively engage in the in-class discussion. At the conclusion of this course, the learner will have a firm knowledge base in the diagnosis and clinical management of patients with common renal disorders.

### **Clinical Diagnosis/Pharmacotherapy II**

#### **Introductory Pharmacotherapy Principles/Cardiovascular Module (2) PHRM 541**

This is the second course in the series that builds upon knowledge and skills that have been acquired in Medicinal Chemistry, Pharmacology I, Pathophysiology I and II, Physical Assessment and Clinical Skills and other basic and clinical science courses. This course will allow the learner to develop and apply critical thinking skills toward the management of patients with cardiovascular disorders. The course is designed to be active learning via case-based discussions. This course will discuss the principles of drug interactions and adverse drug reactions, the process of identifying drug-related problems, and considerations for initiating and monitoring therapy on an inpatient vs. outpatient basis. This course will also provide a firm knowledge base in the diagnosis and clinical management of patients with common cardiovascular disorders.

### **Drug Information and Literature Evaluation (3) PHRM 527**

Emphasizes the skills needed to develop drug information for dissemination to health care providers. Emphasizes the types of drug information available, what sources are appropriate to use in a variety of situations and the strengths and weaknesses of different sources. Provides the knowledge and skills necessary to evaluate clinical trials that validate treatment usefulness, to apply evidence based decision making to patient care and develop guidelines.

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**IPPE: Hospital Pharmacy (1) PHRM 528**

The purpose of the course is to foster a basic understanding of hospital pharmacy practice through site-based experiences. The course is conducted in hospital pharmacy settings located in Philadelphia and its surrounding counties. Experience at the site may incorporate knowledge gained and skills and attitudes developed in the P1 and P2 coursework, as well as in the other IPPE courses, depending upon which semester the IPPEs are assigned.

**IPPE: Ambulatory Care (1) PHRM 537**

The purpose of the course is to instill a basic understanding of ambulatory care pharmacy practice through site-based experiences. The course is conducted in ambulatory care settings located in Philadelphia and its surrounding counties. Experience at the site may incorporate knowledge gained and skills and attitudes developed in the P1 and P2 didactic coursework, as well as in the other IPPE courses, depending upon which semester the IPPEs are assigned.

**Medication Safety (2) PHRM 529**

This course will provide students with an understanding of the basic safety principles employed in the medication-use process. These principles include the following: understanding systems thinking; identifying the types and causes of medication errors; developing strategies for improving the medication-use process; and defining the role of medication safety resources and reporting systems.

**Pharmacology I (3) PHRM 532**

Pharmacology I will encompass three main sections: Principles of Drug Action, Autonomic Pharmacology and Cardiovascular Pharmacology. Principles of Drug Action will provide an introduction to pharmacodynamic parameters of drug action, drug-receptor interaction, drug toxicity, adverse drug reactions and pharmacogenetics. Autonomic Pharmacology will include an overview of the autonomic nervous system (sympathetic and parasympathetic), adrenergic and cholinergic pharmacology, and other chemical mediators. Cardiovascular Pharmacology will include an overview of cardiac, vascular, blood and renal physiology, as they relate to the control of cardiovascular function, and the mechanisms of action of drugs used to treat cardiovascular disorders. Learning activities in the course consist primarily of TurningPoint®-mediated discussions, team-based problem-solving exercises, and in-class quizzes with feedback review.

**Pharmacology II (3) PHRM 536**

Pharmacology II continues to provide an understanding of drug action in the framework of human physiology, biochemistry, and pathophysiology. The main objective of the course is to understand the pharmacology related to particular physiological or biochemical systems including the Endocrine system, Immune

system, Gastrointestinal tract, Respiratory system in addition to anti-infective drugs. The course is designed to include the pharmacology aspect of each biological systems, presentation of drugs and drug classes that activate or inhibit the system by interacting with specific molecular and cellular targets, and discussion of the pathophysiologic targets of each system-associated disorder. Students will gain an understanding of the therapeutic and adverse actions of drugs in the framework of the drug's mechanism of action.

### **Pharmaceutics and Drug Delivery Systems (3) PHRM 530**

Pharmaceutics deals with the formulation, preparation, preservation, and dispensing of medications and related therapeutic devices. A successful dosage form or drug delivery system must ensure the effective, reliable, and safe delivery of the drug to its site of action in the body. The course will explore the many physical, chemical, engineering, organoleptic, and esthetic principles involved in dosage form design and preparation. From tablets and capsules to syrups and injectables, the student will gain an in-depth appreciation of the role of dosage form characteristics relative to the route of administration in drug therapy decisions. Learning activities in the course consist of lectures, problem-solving exercises, and quizzes with feedback review.

### **Pharmaceutics Laboratory (1) PHRM 531**

This course will introduce the student to dosage forms utilized by today's compounding pharmacists and will provide students with an understanding of the prescription and pharmaceutical calculations, including the metric and common systems of measurement, calculation of doses, and various methods of expressing the strength of pharmaceuticals. Upon completion, students should be able to perform correctly the calculations required to prepare a medication order properly. A range of dosage forms will be discussed and prepared, with an emphasis on formulation, preparation and presentation of solid, semi-solid and liquid dosage forms with a specific focus on blends and mixtures (capsules, suppositories, troches, solutions and dispersions; emulsions and suspensions) for oral, rectal, vaginal, topical and transdermal routes of delivery.

### **Pharmacy Management: Theory and Applications (3) PHRM 533**

This course will enable students to apply management principles (planning, organizing, directing and controlling resources) to various pharmacy practice settings. It provides an introduction to marketing principles, basic accounting principles, project management issues, managing and improving the medication-use process, and topics related to healthcare improvement mechanisms at the micro- and macro-system levels.

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**Pharmacy Practice III (1) PHRM 534**

The 3<sup>rd</sup> course in a 4 course series, Pharmacy Practice III will include continued reflection regarding what it means to be a professional with further discussion and exercises focusing on broad issues including cultural competency as well presentations by individuals practicing in a variety of pharmacy environments. Other social and behavioral aspects of pharmacy will be addressed through class discussions and the Jefferson Health Mentors program. The course will also provide a continuation of pharmacy current event topics.

**Pharmacy Practice IV (1) PHRM 538**

The fourth course in a 4 course series, Pharmacy Practice IV will include continued focus on professional development with further discussion and exercises surrounding bioethics, patient safety and cultural competency. Presentations by individuals practicing in a variety of pharmacy environments will continue. Other social and behavioral aspects of pharmacy will be addressed through class discussions and the Jefferson Health Mentors program. Contemporary issues in pharmacy practice will also be discussed and evaluated.

**Pharmacy Practice Laboratory I (1) PHRM 542**

This course will expand and reinforce didactic lecture material from the concurrent Clinical Diagnosis and Pharmacotherapy courses and incorporate practical case-based learning experiences along with clinical and physical assessment skills. In addition, it will further increase the student's level of experience relative to verbal and written communication skills and introduce them to new pharmacy skills where applicable.

**Third Year****Clinical Diagnosis/Pharmacotherapy III: Endocrine Module (3) PHRM 543**

This is the third course in the series that builds upon knowledge and skills that have been acquired in Medicinal Chemistry, Pharmacology I and II, Pathophysiology I and II, and other basic and clinical science courses. This course will allow the learner to develop and apply critical thinking skills toward the management of patients with endocrine, gastrointestinal, dermatological, and pulmonary disorders. The course is designed to be active learning via case-based discussions. Students will be provided patient cases to work up covering endocrine, gastrointestinal, dermatological, and pulmonary disorders. Students will utilize the instructional resources (e.g. textbook, podcasts, journal articles, guidelines, etc) to work through the cases prior to class and come prepared to actively engage in the in-class discussion. At the conclusion of this course, the learner will have a firm knowledge base in the diagnosis and clinical management of patients with common endocrine, gastrointestinal, dermatological, and pulmonary disorders.

**Clinical Diagnosis/Pharmacotherapy IV: Infectious Diseases Module (3)  
PHRM 544**

This is the fourth course in the series that builds upon knowledge and skills that have been acquired in Medicinal Chemistry, Pharmacology I, Pathophysiology I and II, and other basic and clinical science courses. This course will allow the learner to develop and apply critical thinking skills toward the management of patients with infectious diseases. The course is designed to be active learning via case-based discussions. Students will be provided patient cases to work up covering infectious diseases. Students will utilize the instructional resources (e.g. textbook, podcasts, journal articles, guidelines, etc) to work through the cases prior to class and come prepared to actively engage in the in-class discussion. At the conclusion of this course, the learner will have a firm knowledge base in the diagnosis and clinical management of patients with common infectious diseases.

**Clinical Diagnosis/Pharmacotherapy V: Neurology-Psychology Module (3)  
PHRM 546**

This is the fifth course in the series that builds upon knowledge and skills that have been acquired in Medicinal Chemistry, Pharmacology III, Pathophysiology I and II, other basic and clinical science courses, and Clinical Diagnosis/Pharmacotherapy I-IV. This course will allow the learner to develop and apply critical thinking skills toward the management of patients with neurologic and psychiatric disorders. The course is designed to be active learning via case-based discussions. Students will be provided patient cases to work up covering neurologic and psychiatric disorders. Students will utilize the instructional resources (e.g. textbook, journal articles, guidelines, etc) to work through the cases prior to class and come prepared to actively engage in the in-class discussion. At the conclusion of this course, the learner will have a firm knowledge base in the diagnosis and clinical management of patients with common neurologic and psychiatric disorders.

**Clinical Diagnosis/Pharmacotherapy VI: Oncology Module (3) PHRM 547**

This is the sixth course in the Clinical Diagnosis/Pharmacotherapy series that builds upon knowledge and skills acquired in Medicinal Chemistry, Pharmacology III, Pathophysiology I and II, and other basic and clinical science courses. This course will allow the learner to develop and apply critical thinking skills toward the management cancer patients. The course is designed to be active learning via case-based discussions. Students will be provided patient cases to work up covering oncology diseases. Students will utilize the instructional resources (e.g. textbook, journal articles, guidelines, etc) to work through the cases prior to class and come prepared to actively engage in the in-class discussion. At the conclusion of this

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course, the learner will have a firm knowledge base in the diagnosis, clinical treatment and supportive care management of cancer patients.

### **Integrated Practice Applications (1) PHRM 552**

This course will serve as the capstone course to the P1 through P3 curriculum. Throughout the semester, students will utilize the knowledge and skills obtained throughout the curriculum to date to perform comprehensive activities. Students will practice a comprehensive approach (clinical, social, administrative) to solving integrated problems and cases throughout the semester with frequent instructor feedback.

### **IPPE : Direct Inpatient Care (2) PHRM 558**

The purpose of this course is to instill a basic understanding of direct inpatient care pharmacy practice through site-based experiences. The course is conducted in hospitals located in Philadelphia and its surrounding counties. Experience at the site may incorporate knowledge gained and skills and attitudes developed in the P1 and P2 didactic coursework; as well as in the other IPPE courses. Depending upon which semester this IPPE is assigned, the student may also incorporate the knowledge gained and skills developed in the P3 coursework.

### **IPPE: Elective (2) PHRM 568**

The purpose of this course is to provide students with an expanded awareness and understanding of potential career opportunities within the pharmacy profession. Through participation in this IPPE, students can explore an area of pharmacy practice in which they have a personal interest. This course is conducted in a variety of pharmacy settings located in Philadelphia and its surrounding counties. Selective sites include a wide range of patient care practices. Experience at the site may incorporate knowledge gained and skills and attitudes developed in the P1 and P2 didactic coursework; as well as in the other IPPE courses. Depending upon which semester this IPPE is assigned, the student may also incorporate the knowledge gained and skills developed in the P3 coursework.

## **Pharmacology III**

### **Neuropsychopharmacology and Cancer Chemotherapeutics (3) PHRM 539**

Pharmacology III focuses on drugs effective for the chemotherapy of cancer, drugs applicable for the treatment of neurological and psychiatric disorders, and abusable drugs that modulate normal ranges of behavior. For a clearer appreciation of presented concepts, class discussions will include some material on drugs that are used as experimental probes for understanding physiological function even though such agents may not currently be used clinically. The oncopharmacology section will examine the range of chemically diverse anticancer compounds and synthesize common mechanistic themes for this category of drugs. The neuropharmacology

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section begins with a review of the structures and mediators that play key roles in various brain functions, identifies neurochemical opportunities for pharmacologically targeting associated brain dysfunctions, and describes the properties of various classes of agents in current use. This approach should provide a strong foundation from which the student may continue on in lifelong learning, particularly in the fast-evolving fields of neurology and psychiatry.

### **Pharmacoeconomics and Health Outcomes (3) PHRM 551**

Covers the science of pharmacoeconomics including design, methods, and analysis; discusses the context and uses of pharmacoeconomic analysis in U.S. healthcare decision making from various perspectives; explains global application of pharmacoeconomics to inform pharmaceutical reimbursement policies and decisions.

### **Pharmacy Grand Rounds (2) PHRM 550**

This course will evaluate the influence of interprofessional collaboration on the healthcare system. Topics of discussion will include patient safety and error reduction; the interactions between ethics, culture and biomedicine; healthcare disparities; social determinants (i.e., income, education, employment, social status, state laws, etc.); evidence-based decision making; and healthcare reform. Students will address these issues incorporating aspects that may include but are not limited to principles of professional behavior, ethical dilemmas, conflict of interest, ethical issues in delivery of patient-centered care, and clinical research. In order to provide an interprofessional experience, practicing nurses will participate in discussion boards.

### **Pharmacy Practice Laboratory II (1) PHRM 545**

This course will expand and reinforce didactic lecture material from the concurrent Clinical Diagnosis and Pharmacotherapy courses and incorporate practical case-based learning experiences along with clinical and physical assessment skills. In addition, it will further increase the student's level of experience relative to verbal and written communication skills and introduce them to new pharmacy skills where applicable.

### **Pharmacy Practice Laboratory III (1) PHRM 548**

This course will expand and reinforce didactic lecture material from the concurrent Clinical Diagnosis and Pharmacotherapy courses and incorporate practical case-based learning experiences along with clinical and physical assessment skills. In addition, it will further increase the student's level of experience relative to verbal and written communication skills and introduce them to new pharmacy skills where applicable.

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**Professional Seminar I (2) PHRM 553**

Students will develop, present and assess individual presentations focusing on specific pharmacotherapeutic topics. The course will emphasize critical thinking and effective verbal communication skills and allow students to apply biostatistics and literature evaluation skills.

**Fourth Year****APPE: Community Pharmacy (6) PHRM 630**

The purpose of this course is to provide students with the opportunity to apply, reinforce and advance the knowledge, skills, attitudes and values developed throughout the P1, P2 and P3 curriculum. The course is conducted in community pharmacies. Emphasis is placed on the student's ability to recall and apply knowledge and skills applicable to the community pharmacy practice environment and to demonstrate attitudes and values expected of pharmacists in this environment. The accurate and safe interpretation, processing, and dispensing of prescriptions including the resolution of any problems and the provision of patient education comprises a major component of this course. Key activities include: processing and dispensing prescriptions in compliance with applicable laws and regulations, interviewing and educating patients, monitoring adherence and response to prescribed medications, advising patients on the use of over-the-counter products, complementary medication, and healthy lifestyle choices. This course is six weeks in duration; 40 hours/week

**APPE: Hospital Pharmacy (6) PHRM 640**

The purpose of this course is to provide students with the opportunity to apply, reinforce and advance the knowledge, skills, attitudes and values developed throughout the P1, P2 and P3 curriculum. The course is conducted in hospital pharmacies. Emphasis is placed on the student's ability to effectively participate in a broad spectrum of activities encompassed within the job responsibilities of contemporary hospital pharmacists. Key activities relate to medication order processing, medication storage, medication distribution, medication safety, and provision of information about medications. This course is six weeks in duration; 40 hours/week

**APPE: Ambulatory Care (6) PHRM 650**

The purpose of this course is to provide students with the opportunity to apply, reinforce and advance the knowledge, skills, attitudes and values developed throughout the P1, P2 and P3 curriculum. The course is conducted in ambulatory healthcare facilities. Emphasis is placed on the student's ability to recall and apply knowledge and skills applicable to the ambulatory care practice environment and to demonstrate attitudes and values expected of pharmacists in this environment.

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Management of chronic medical conditions that are treated pharmacologically comprises a major component of disease states seen. Key activities include interviewing and educating patients, performing basic physical assessment, monitoring response to prescribed medication, and developing evidence-based pharmaceutical care plans. This course is six weeks in duration; 40 hours/week

**APPE: Direct Inpatient Care (6) PHRM 660**

The purpose of this course is to provide students with the opportunity to apply, reinforce and advance the knowledge, skills, attitudes and values developed throughout the P1, P2 and P3 curriculum. The course is conducted in hospitals located in Philadelphia. Emphasis is placed on the student's ability to effectively participate in the patient care decision-making process, functioning as an integral member of the inpatient healthcare team. The most commonly encountered medical conditions include cardiovascular disorders, diabetes, infectious diseases, pulmonary disorders, and renal and hepatic dysfunction. Key activities include retrieval and assessment of pertinent information contained in patients' medical records, development and monitoring of pharmaceutical care plans, participating in the interdisciplinary decision-making process, and providing drug information. This course is six weeks in duration; 40 hours/week

**APPE: Direct Patient Care Elective (6) PHRM 670**

The purpose of this course is to provide students with the opportunity to apply, reinforce and advance the knowledge, skills, attitudes and values developed throughout the P1, P2 and P3 curriculum. The course is conducted in patient care settings. Common types of sites include, but are not limited to: acute care, ambulatory care, home infusion, and community pharmacy locations. Emphasis is placed on the student's ability to effectively participate in the patient care decision-making process, functioning as an integral member of the healthcare team. The most commonly encountered pharmacist responsibilities and the common medical conditions will be dependent upon the nature of the patient care site. Key activities include retrieval, assessment and maintenance of pertinent information contained in patients' clinical records, developing and/or monitoring care plans, accurate preparation and dispensing of medications to patients or caregivers, participating in the interdisciplinary decision-making process, and providing drug information. This course is six weeks in duration; 40 hours/week

**APPE: Open Elective (6) PHRM 680**

The purpose of this course is to provide students with the opportunity to apply, reinforce and advance the knowledge, skills, attitudes and values developed throughout the P1, P2 and P3 curriculum. The course is conducted in sites whose activities impact patient care; but do not provide direct patient care. Common types of sites include, but are not limited to: management, drug information, academia,

research, pharmaceutical manufacturers, medical writing firms, medical advertising, firms, etc. Emphasis is placed on the student's ability to effectively participate in the site's activities, functioning as an integral member of the site's team in the role(s) assigned to the pharmacist(s) at that site. This course is six weeks in duration; 40 hours/week

### **Pharmacy Law (1) PHRM 610**

This course provides a comprehensive overview of pharmacy law, with a special focus on the laws and regulations affecting the day-to-day practice of pharmacy. It will not only allow the learner to understand the interrelationship of federal and state laws and regulations affecting the practice of pharmacy, but also permit the learner to apply this knowledge in being able to research legal issues as they occur in daily practice. It will facilitate the development and application of problem-solving skills based on scenario-based pharmacy management issues presented during class and will address the 2 main laws and related regulations affecting the practice of pharmacy, namely the Food Drug and Cosmetic Act and the Controlled Substance Act. The course will also provide a solid understanding of the Pennsylvania Pharmacy Act and Pharmacy regulations (Title 49, Chapter 27; Title 28, Chapter 25) and will address relevant aspects of Omnibus Budget and Reconciliation Act (OBRA 90), Health Insurance Portability & Accountability Act (HIPAA), and malpractice liability.

### **Professional Seminar II (2) PHRM 620**

Students will develop and present individual presentations focusing on specific therapeutic topics, topics of ethical interest, or global healthcare issues impacting pharmacy. The course will emphasize critical thinking and effective verbal communication skills and will allow students to apply biostatistics and literature evaluation skills.

## ***ELECTIVE COURSES***

### **Global Health and Infectious Diseases (2) PHRM 560**

This course will provide students with an understanding of the concepts of global health, epidemiology, and emerging and reemerging infectious diseases in various areas of the world.

### **Creating Pharmacy Leaders (2) PHRM 561**

This course is designed to acquaint the pharmacy student with current pharmacy professionals who are considered to be leaders within the profession. The student will also become familiar with characteristics common amongst leaders.

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**Cardiovascular Primary Literature Review (3) PHRM 562**

This course reviews major, noteworthy trials, from primary sources, that are responsible for supporting common cardiovascular-related therapeutic practices and decision making in an ambulatory care setting. Advanced primary literature evaluation skills, evidenced-based medicine practices, and real-world application of trial results will be emphasized. Correlation will be made between current therapeutic guidelines, trial design, and the clinical data.

**Women's Health – From Historical Perspectives to Medical Interventions (3) PHRM 563**

This elective course will introduce and build upon the P3 pharmacy student's knowledge relative to women's health topics across the lifespan. Using an evidence-based approach, the optimization of women's health will be presented and discussed. Course topics may include, but are not limited to: the history of women in clinical trials; health disparities based upon gender; the role of gender in affecting the healthcare system; the importance/role of well-care screenings specific to women; drug therapy management and decisions related to pregnancy and lactation; thromboembolic disorders in women; the female athlete triad; menstruation-related disorders; endometriosis; and cardiovascular disease in women.

**Current Topics in Cardiovascular Disease: An Evidence-Based Discussion (3) PHRM564**

This course reviews contemporary noteworthy trials, from primary sources, that are responsible for supporting cardiovascular and/or type 2 diabetes related therapeutic practices and decision making. Specifically, this course will have an emphasis on trials that have been published within the past 2-3 years. Advanced primary literature evaluation skills, evidenced-based medicine practices, and real-world application of trial results will be emphasized. Correlation will be made between current therapeutic guidelines, trial design, and the clinical data.

**Pediatric Pharmacotherapy (2) PHRM 565**

This course is designed to expand the student's current knowledge base regarding the pediatric population and to introduce the core concepts involved in the care of special populations. The course is provided to prepare students to identify and address drug related problems in pediatric patients and to demonstrate competency within those areas. In addition, medical terminology will be learned and applied to the course content.

**Advanced Pharmacology (2) PHRM 567**

Targeted at a select group of students aspiring to advanced education in pharmacotherapy, clinical pharmacology, or pharmacological research, the course will expose the participants to evidence-based methods of reading and analyzing the

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primary literature in the pharmaceutical sciences. Students will gain competencies necessary to identify the goals of an experimental study, appreciate the methods used, analyze the data presented, and draw appropriate conclusions based on the strength and reliability of the evidence. Class sessions will analyze and discuss one or two primary publications relevant to drug mechanisms, actions, formulation, and/or uses. Each session will be facilitated by a faculty who is expert in the major areas covered in the session.

### **The Psychology of Scientific Thinking (3) PHRM 569**

This course is designed to review methods of science and the role that science plays in the understanding of how the world works. Throughout the course students will be given the tools to be able to differentiate between valid scientific claims and those made as a result of pseudoscience. The main emphasis of the course will be the development of critical thinking skills and a healthy skepticism when confronted with “scientific” claims. Special emphasis will be made to scientific versus pseudoscientific health claims and consumer processes. This course is also designed to introduce students to basic psychological processes that underlie human judgment and decision making that play a role in the persistence of beliefs in pseudoscientific and nonscientific explanations of behavior and phenomena.

### **Critical Care Pharmacotherapy (2) PHRM 570**

The purpose of this course is to introduce students to the field of critical care pharmacy practice. Students will learn how to approach the care of a critically ill patient and will explore topics such as sedation and analgesia, medical emergencies, toxicology, mechanical ventilation and end-of-life care.

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