

# PHARMACY – PHARM.D.

The curriculum at Loma Linda University School of Pharmacy is designed to ensure students are prepared for lifelong learning and prepared to serve as medication experts. The school reserves the right to make changes to the curriculum upon recommendation of the curriculum committee and adoption by the faculty. Students will be notified of any necessary changes.

## Admissions

### General entrance information

Applicants to the School of Pharmacy must fulfill the prerequisite course requirements listed below. For a course to fulfill the biology, chemistry, organic chemistry, and physics prerequisites, it must be taken at the level of those required for a science major in the field. Introductory courses are not acceptable. The minimum cumulative G.P.A. and cumulative mathematics/science G.P.A. considered for acceptance to the School of Pharmacy is 2.75 on a 4.00 scale.

### Required courses (semester/quarter units)

- General biology, with laboratory\* (8/12)
- General chemistry, with laboratory\* (8/12)
- Organic chemistry, with laboratory\* (8/12)
- General physics (one quarter or/semester), lecture and laboratory (4/4) Must include mechanics or Newtonian physics. Survey course is acceptable.

Decisions regarding the final determination of acceptable courses as prerequisites reside with the School of Pharmacy Admissions Committee in collaboration with the Office of University Records.

- \* A full sequence of coursework is required for general biology, general chemistry and organic chemistry. The semester and quarter units listed in the table above are a general guideline for the *minimum* number of units that must be completed to fulfill the prerequisite requirements. These minimum units may not be the same in all universities/colleges.

In rare circumstances, an applicant who has not completed a bachelor's degree may be considered for admission into the School of Pharmacy. An applicant without a bachelor's degree must complete an additional 12 semester or 16 quarter units of coursework in Social and Behavioral sciences, an additional 12 semester or 16 quarter units of coursework in humanities and fine arts, and an additional six semester or nine quarter units of English composition.

### Recommended courses

Biochemistry  
Molecular Biology  
Cellular Biology  
Genomics  
Histology  
Human Genetics  
Immunology  
Microbiology  
Physiology

### Recommended experience

It is highly recommended that applicants obtain volunteer or pharmacy work experience.

### Application and acceptance requirements

#### Application process

The School of Pharmacy only accepts online applications through the central application service PharmCAS. The link to PharmCAS and other required forms are available online at <http://www.llu.edu/central/apply/>.

#### Procedure

The application procedure is as follows:

- Online submission of Doctor of Pharmacy application through PharmCAS.
- A minimum of two letters of reference are required, one of which should be from a faculty member who is familiar with your academic performance. Letters of reference are recommended from science professors and professionals in the field of pharmacy and must be submitted through PharmCAS. A letter of reference is recommended from a pastor, clergy, or spiritual advisor. Committee letters are accepted from Seventh-day Adventist colleges/universities only and will fulfill the requirement for recommendation letters.
- Written personal statement (answer all questions in two pages or less).
- Projected College Work form (if applicable).
- After the completed PharmCAS application is received and reviewed, the applicant may be invited for an interview. All application documents are evaluated by the School of Pharmacy Admissions Committee to determine if the applicant is accepted or denied. All applicants are notified of the final committee decision. Admission into the School of Pharmacy continues until the class is filled.

#### Acceptance process

The accepted applicant is sent an email acceptance letter that includes a link to the online confirmation process and deadline. At this link, the accepted applicant can confirm and pay the \$350 class-holding fee electronically. The class-holding fee can also be paid by check for an additional processing fee of \$25. The class-holding fee is applied to the student's financial account at the time of matriculation. Class-holding fees are nonrefundable. A follow-up acceptance letter is also mailed to the applicant's home address.

#### International applicants

International applicants must have their transcripts reviewed by the following evaluation service prior to applying:

- World Education Services (WES) <http://www.wes.org/>.

If the applicant's native language is not English, or if most education was completed in a non-English program, a score of at least 80 (Internet based) on the Test of English as a Foreign Language (TOEFL) is required. Some consideration is given to applicants who have earned a college degree in an English-speaking country. Please visit <http://www.ets.org/toefl> (<http://www.ets.org/toefl/>) for more information.

#### Rolling admission

The School of Pharmacy has a rolling admission policy in which completed applications are reviewed and students are accepted on a continual basis within the period from the time PharmCAS begins

verifying applications for our program (typically September) through the end of March.

## Admission deadline

The School of Pharmacy accepts applications through PharmCAS as soon as the PharmCAS application portal goes live (typically in July) through March (dates may vary; late applications are accepted by contacting the admissions office directly) for entry in August of the following year.

Transcripts, evaluation of international transcripts (if applicable), and TOEFL scores (if applicable) should be mailed to the following address:

Admissions Processing  
Loma Linda University  
11139 Anderson Street  
Loma Linda, CA 92350

## Degree requirements

Course	Description	Units
RELT 706	Adventist Beliefs and Life	2
RXEE 580	Introductory Pharmacy Practice Experience—Community I	3
RXPC 561	Pharmaceutical Care I	4
RXPS 501	Pharmaceutical Calculations	2
RXPS 502	Pharmaceutics I	4
RXPS 503	Pharmaceutics II	3
RXPS 541	Foundations of Biomedical Science I	4
RXPS 542	Foundations of Biomedical Science II	4
RXR 500A	Professional Development	1.5
RXR 500B	Professional Development	1.5
RXSA 547	Pharmacy Law	2
RXSA 555	Epidemiology and Public Health	3
RXSA 650	Biostatistics	3
RXTH 560	Pharmacist-Guided Self Care	5
RXTH 570	Introduction to Disease Management	2.5
<b>Second Year</b>		
RELE 705	Ethics in Pharmacy Practice	3
RELR 709	Christian Perspectives on Death and Dying	2
RXDI 664	Drug Information and Literature Evaluation	3
RXEE 680	Introductory Pharmacy Practice Experience—Community II	2
RXEE 690	Introduction to Hospital Pharmacy Practice	2
RXPS 543	Foundations of Biomedical Science III	4
RXPS 544	Foundations of Biomedical Science IV	4
RXPS 610	Pharmacokinetics	4
RXR 600A	Professional Development	1.5
RXR 600B	Professional Development	1.5
RXSA 646	Principles of Management	3
RXSA 751	Social-Behavioral Aspects of Pharmacy Practice	3
RXTH 671	Fluids and Electrolytes	2
RXTH 674	Renal and Respiratory Diseases	3.5
RXTH 683	Endocrine	3.5
RXTH 684	Cardiovascular I	3.5
RXTH 685	Cardiovascular II	3.5

Course	Description	Units
<b>Third Year</b>		
RELE 706	Advanced Ethics in Pharmacy Practice	2
RELT 740	World Religions and Human Health	3
RXEE 790	Introduction to Clinical Pharmacy Practice	2
RXPC 761	Pharmacy Practice I	2
RXPC 762	Pharmacy Practice II	2
RXPC 763	Pharmacy Practice III	4
RXPS 545	Foundations of Biomedical Science V	4
RXR 700A <sup>2</sup>	Professional Development	1.5
RXR 700B <sup>2</sup>	Professional Development	1.5
RXSA 743	Health Systems, Reimbursement, and Pharmacoeconomics	3
RXTH 704	Special Populations	3
RXTH 771	Central Nervous System II	3.5
RXTH 773	Central Nervous System I	3.5
RXTH 774	Gastrointestinal Disorders	2.5
RXTH 775	Oncology	2.5
RXTH 776	Infectious Diseases	7
	Electives <sup>1</sup>	9
<b>Fourth Year</b>		
Six (6) of the following eight (8) APPE courses required:		
RXEE 821	Advanced Pharmacy Practice Experience I	6
RXEE 822	Advanced Pharmacy Practice Experience II	6
RXEE 823	Advanced Pharmacy Practice Experience III	6
RXEE 824	Advanced Pharmacy Practice Experience IV	6
RXEE 825	Advanced Pharmacy Practice Experience V	6
RXEE 826	Advanced Pharmacy Practice Experience VI	6
RXEE 827	Advanced Pharmacy Practice Experience VII	6
RXEE 828	Advanced Pharmacy Practice Experience VIII	6
<b>Total Units:</b>		<b>185.5</b>

<sup>1</sup> To be completed by the end of the third year (no more than 4 units of independent study can be applied to this requirement). Choose from the electives listed below. Elective courses are subject to change.

<sup>2</sup> The combination of RXR 700A Professional Development and RXR 700B Professional Development fulfill the service learning requirement.

## Electives

RXPS 616	Neuropsychopharmacology	3
RXPS 630	Biochemical Aspects of the Obesity and Metabolic Syndrome	2
RXPS 710	Dietary Supplements	2
RXPS 719	Nutrition and Metabolic Syndrome	2
RXPS 782	Special Topics in Pharmaceutical Sciences	1-4
RXPS 783	Special Topics in Pharmaceutical Sciences	1-4
RXPS 784	Special Topics in Pharmaceutical Sciences	1-4
RXR 506	Introduction to Pharmacy Leadership	1
RXR 798	Independent Study with Faculty	1-4
RXSA 618	Writing for Publication	3
RXSA 748	Advanced Topics in Pharmacy Law	1
RXTH 529	Strategies for Achieving a Successful Career in Pharmacy	2

RXTH 605	Advanced Diabetes Management	2
RXTH 606	Antimicrobial Stewardship	1
RXTH 608	Viral Infections Evidence-Based Therapy	2
RXTH 609	Advanced Literature Evaluation	1
RXTH 610	Introduction to Pharmacy Informatics	1
RXTH 615	Nuclear Pharmacy Concepts	1
RXTH 619	Clinical Pharmacokinetic Dosing and Monitoring	3
RXTH 701	Pediatric Pharmacotherapy	2
RXTH 702	Advanced Topics in Neurology and Therapeutics	2
RXTH 703	Advanced Topics in Critical Care	2
RXTH 708	Mental Health in the Movies	2
RXTH 757	Advanced Cardiovascular Life Support	3
RXTH 782	Special Topics in Pharmacy Practice	1-4
RXTH 783	Special Topics in Pharmacy Practice	1-4
RXTH 784	Special Topics in Pharmacy Practice	1-4

## Normal time to complete the program

Four (4) years (12 academic quarters) — full-time enrollment required

## Pharmacy Practice/Experiential Education Courses

### **RXEE 580. Introductory Pharmacy Practice Experience—Community I. 3 Units.**

Introduction to pharmacy practice in a community setting. Focuses on pharmacist, technician, health-care provider, and patient interactions. Prerequisite: RXEE 690, and a valid pharmacist intern license.

### **RXEE 591. Introduction to Community Pharmacy Practice I. 2 Units.**

Part of a two-course sequence for practical exposure to community pharmacy practice. Student learns through practicum and reflection the basic skills required in community pharmacy practice.

### **RXEE 592. Introduction to Community Pharmacy Practice II. 2 Units.**

Part of a two-course sequence for practical exposure to community pharmacy practice. Student learns basic skills required in community pharmacy practice through practicum and reflection.

### **RXEE 680. Introductory Pharmacy Practice Experience—Community II. 2 Units.**

Introduction to pharmacy practice in a community setting with emphasis on applying clinical knowledge to patient counseling and education on prescription and self-care medications. Addresses pharmacist, technician, other health-care provider, and patient interactions. Prerequisite: RXEE 580, and a valid pharmacist intern license.

### **RXEE 690. Introduction to Hospital Pharmacy Practice. 2 Units.**

Exposes students to the various clinical, administrative, and distributive roles and responsibilities of a hospital pharmacist. Prerequisite: P2 standing.

### **RXEE 790. Introduction to Clinical Pharmacy Practice. 2 Units.**

Exposes students to a variety of clinical pharmacy services—including ambulatory care, medicine, and a number of specialty practice areas. Prerequisite: P3 standing.

### **RXEE 821. Advanced Pharmacy Practice Experience I. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

### **RXEE 822. Advanced Pharmacy Practice Experience II. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

### **RXEE 823. Advanced Pharmacy Practice Experience III. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

### **RXEE 824. Advanced Pharmacy Practice Experience IV. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

### **RXEE 825. Advanced Pharmacy Practice Experience V. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

### **RXEE 826. Advanced Pharmacy Practice Experience VI. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

### **RXEE 827. Advanced Pharmacy Practice Experience VII. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

### **RXEE 828. Advanced Pharmacy Practice Experience VIII. 6 Units.**

Immersion in clinical practice within inpatient settings. Addresses comprehensive pharmaceutical care plans within the Pharmacist Patient Care Process. Prerequisite: Successful completion of didactic courses; valid pharmacist intern license.

## Pharmacy Practice/Pharmaceutical Care Courses

### **RXPC 561. Pharmaceutical Care I. 4 Units.**

First of three courses addressing pharmacy practice. Introduces the essence of being a professional and the challenges of applying these ideals. Includes: professionalism; practice philosophies; professional relationships; career paths; and, lifelong-learning in pharmacy. Incorporates study of the top 200 drugs by brand and generic names, therapeutic and drug classifications, and manufacturer.

### **RXPC 571. Pharmacist Guided Self-Care I. 3 Units.**

Familiarizes the student with nonprescription health care products. Emphasizes patient assessment, indicated medical conditions, pharmacology, product selection, self-administration techniques, and patient counseling/follow-up. Lecture/discussion to simulate patient encounters.

### **RXPC 572. Pharmacist Guided Self-Care II. 3 Units.**

Continues RXPC 571.

### **RXPC 761. Pharmacy Practice I. 2 Units.**

First of three laboratory courses addressing pharmacy practice. Presents issues in contemporary pharmacy practice. Includes: roles of the pharmacist in drug-therapy management; drug-administration techniques, devices, and compounding techniques; evaluating patient medication profiles, monitoring patient outcomes, patient counseling, and disease-state management; application of appropriate communication and computer skills; and, the role of the pharmacist as a health educator.

### **RXPC 762. Pharmacy Practice II. 2 Units.**

Second of three laboratory courses addressing pharmacy practice. Presents issues in contemporary pharmacy practice. Includes: roles of the pharmacist in drug-therapy management; drug-administration techniques, devices, and compounding techniques; evaluating patient medication profiles, monitoring patient outcomes, patient counseling, and disease-state management; application of appropriate communication and computer skills; and, the role of the pharmacist as a health educator.

**RXPC 763. Pharmacy Practice III. 4 Units.**

Capstone course that enhances students' skills and abilities in clinical application of knowledge, patient assessment, patient case presentation, and literature evaluation. Includes three activities that reinforce many of these skills.

**Pharmaceutical Sciences Courses****RXPS 501. Pharmaceutical Calculations. 2 Units.**

Presents foundational mathematical principles concerned with the formulation, preparation and effectiveness of pharmaceutical dosage forms and dispensing of prescription medication commonly seen in a variety of practice settings.

**RXPS 502. Pharmaceutics I. 4 Units.**

Addresses the study and application of physical and chemical principles to the development, preparation, and stabilization of pharmaceutical dosage forms. Also included is a study of biological and physicochemical factors that influence availability of a drug from dosage form and subsequent disposition and response of the drug in the body.

**RXPS 503. Pharmaceutics II. 3 Units.**

Studies the mathematical, physicochemical, and biological principles involved in the design, preparation and effectiveness of pharmaceutical dosage forms employed for various routes of administration.

Prerequisite: RXPS 502.

**RXPS 541. Foundations of Biomedical Science I. 4 Units.**

Foundational biological, chemical, physiological, and pharmacological principles related to drug action, wellness, and disease. Focuses on the roles that proteins play in enzymatic catalysis, gene regulation, pharmacogenomics, membrane transport, signal transduction, drug toxicity, and the physiology and pharmacology of neurons and myocytes.

**RXPS 542. Foundations of Biomedical Science II. 4 Units.**

Pharmacologic basis for drug treatment of diseases of the nervous, respiratory and endocrine systems. Addresses basic physiologic principles and the pathophysiology of key pathways of all three systems. Themes include: molecular and cell physiology, drug receptor physiology, transporters, asthma, ventilation-perfusion mismatch, lung function changes in obstructive and restrictive lung diseases, diabetes and hypothalamic and pituitary regulation of the endocrine organs.

**RXPS 543. Foundations of Biomedical Science III. 4 Units.**

Presents foundational principles of the pathophysiology of endocrine, cardiovascular, and renal system diseases. Focuses on the pharmacology of drugs used to treat endocrine, cardiovascular, and renal disorders.

**RXPS 544. Foundations of Biomedical Science IV. 4 Units.**

Presents foundational principles of the digestive system, the immune system, and infectious diseases. Focuses on the pharmacology of drugs used to treat digestive and immune disorders as well as bacterial and viral infections.

**RXPS 545. Foundations of Biomedical Science V. 4 Units.**

Provides foundational knowledge for understanding the pathophysiology of diseases that affect the central nervous system (CNS) and cancer—including cancer immunotherapy. Also covers the pharmacology of drugs used to treat CNS disorders and cancer.

**RXPS 610. Pharmacokinetics. 4 Units.**

Teaches the basic principles of absorption, distribution, metabolism, and elimination of drugs from the body. Focuses on physical, physiological, and biochemical factors that impact these processes. Includes clinical pharmacokinetics principles and practical examples in the recitation periods. Prerequisite: Successful completion of all P1-level courses and P2; Autumn Quarter standing.

**RXPS 615. Learning and Memory. 2 Units.**

Introduces students to evidence-based, effective strategies to optimize learning and memory. Develops active learners with lifelong learning skills to promote success not only in school but also in the workplace.

**RXPS 616. Neuropsychopharmacology. 3 Units.**

Fundamentals of neuropsychopharmacology, including the functional organization of the brain, and the physiology and biochemistry of major neurotransmitters. Examines how medications and drugs of abuse affect the brain and alter behavior. Discusses common brain disorders with a focus on the mechanisms of action of drugs used for treatment.

**RXPS 617. Natural Products in Current Therapeutics. 2 Units.**

A journal club-style course in which students lead the discussion and dialogue. Explores specific cases of natural product-derived therapeutics from the history of discovery, synthesis, and biological activity to drug development and marketing. Students perform literature searches, read and summarize journal articles, present summaries of multiple articles on a similar topic, and prepare topical presentations for the class.

**RXPS 619. Nutrition and Culinary Arts. 2 Units.**

Develops basic nutrition and culinary arts skills for patient care. Addresses disease reversal, lifestyle-change programs, lifestyle medicine, culinary medicine, culinary prescription, and the whole-food plant-based diets. Includes: chronic disease classification, disease reversal research, label reading, portion size, nutrient comparisons, budgeted meal planning, and community health strategies.

**RXPS 630. Biochemical Aspects of the Obesity and Metabolic Syndrome. 2 Units.**

Explores biochemical factors related to obesity. Emphasizes the impact of these factors on currently available pharmacotherapeutic options and development of new therapies. Focuses on the role of pharmacist-guided lifestyle interventions on the treatment of obesity and metabolic syndrome.

**RXPS 651. Principles of Medicinal Chemistry I. 3 Units.**

The first in a three-course sequence that focuses on the chemistry of drug entities. Effects of a drug's chemistry on its various properties, such as pharmacology, toxicology, absorption, distribution, metabolism, excretion, mechanism of action, drug-drug interactions, dosage form formulation(s), stability, cost, and use.

**RXPS 652. Principles of Medicinal Chemistry II. 4 Units.**

The second in a three-course sequence that focuses on the chemistry of drug entities. Effects of a drug's chemistry on its various properties, such as pharmacology, toxicology, absorption, distribution, metabolism, excretion, mechanism of action, drug-drug interactions, dosage form formulation(s), stability, cost, and use. Prerequisite: RXPS 651.

**RXPS 653. Principles of Medicinal Chemistry III. 3 Units.**

The third in a three-course sequence that focuses on the chemistry of drug entities. Effects of a drug's chemistry on its various properties, such as pharmacology, toxicology, absorption, distribution, metabolism, excretion, mechanism of action, drug-drug interactions, dosage form formulation(s), stability, cost, and use. Prerequisite: RXPS 652.

**RXPS 710. Dietary Supplements. 2 Units.**

Introduces the use of herbals and other supplements in patient health. Topics include key regulatory and practical concerns; resources for supplement information; and evidence-based use and adverse effects of commonly used supplements for CNS, digestive, reproductive, immune, fitness, and other conditions.

**RXPS 719. Nutrition and Metabolic Syndrome. 2 Units.**

Introduces the role of nutrition, including dietary supplements, in patient health. Topics include the basics of nutrition and nutritional adequacy; vegetarian diets, including the Adventist Health Study; and nutritional considerations related to metabolic syndrome.

**RXPS 730. Current Topics in Medicinal Chemistry and Drug Design. 1 Unit.**

Focuses on discovery and design of new drugs for new therapeutic targets, and on development of new approaches for treatment of diseases.

**RXPS 782. Special Topics in Pharmaceutical Sciences. 1-4 Units.**

Lecture and discussion on a current topic in pharmaceutical sciences. May be repeated for a maximum of 6 units.

**RXPS 783. Special Topics in Pharmaceutical Sciences. 1-4 Units.**

Lecture and discussion on a current topic in pharmaceutical sciences. May be repeated for a maximum of 6 units.

**RXPS 784. Special Topics in Pharmaceutical Sciences. 1-4 Units.**

Lecture and discussion on a current topic in pharmaceutical sciences. May be repeated for a maximum of 6 units.

## Pharmacy Conjoint Courses

**RXRX 500A. Professional Development. 1.5 Unit.**

A three-course sequence. Emphasizes professional knowledge, skills, abilities, behaviors, and attitudes required to produce a competent, practice-ready professional; and to develop a successful career in pharmacy. Focuses on well-being and professionalism/professional identity. Prerequisite: PY1 standing.

**RXRX 500B. Professional Development. 1.5 Unit.**

Continuation of RXRX 500A. Prerequisite: RXRX 500A.

**RXRX 501. School of Pharmacy Forum. 0 Units.**

Presents current topics affecting pharmacy, health care, and career paths from a multidisciplinary perspective. Offered on a weekly basis throughout the four-year program.

**RXRX 506. Introduction to Pharmacy Leadership. 1 Unit.**

Offers academic credit for activities related to leadership development associated with the California Pharmacy Student Leadership Program. Strengthens leadership behavior. Students invited to take part in this program must register for this course and complete it as a condition of their participation. May be repeated once for a maximum of 2 units. Prerequisite: Permission of the Office of Student Affairs; PY-1 Spring Quarter professional year standing.

**RXRX 600A. Professional Development. 1.5 Unit.**

A three-course sequence. Emphasizes professional knowledge, skills, abilities, behaviors, and attitudes required to produce a competent, practice-ready professional; and to develop a successful career in pharmacy. Focuses on health literacy. Prerequisite: PY2 standing.

**RXRX 600B. Professional Development. 1.5 Unit.**

Continuation of RXRX 600A. Prerequisite: RXRX 600A.

**RXRX 601. School of Pharmacy Forum. 0 Units.**

Presents current topics affecting pharmacy, health care, and career paths from a multidisciplinary perspective. Offered on a weekly basis throughout the four-year program.

**RXRX 700A. Professional Development. 1.5 Unit.**

A three-course sequence. Emphasizes professional knowledge, skills, abilities, behaviors, and attitudes required to produce a competent, practice-ready professional; and to develop a successful career in pharmacy. Focuses on interprofessional communication and team STEPPS. Prerequisite: PY3 standing.

**RXRX 700B. Professional Development. 1.5 Unit.**

Continuation of RXRX 700A. Prerequisite: RXRX 700A.

**RXRX 701. School of Pharmacy Forum. 0 Units.**

Presents current topics affecting pharmacy, health care, and career paths from a multidisciplinary perspective. Offered on a weekly basis through the third professional year. throughout the four-year program.

**RXRX 720. Dynamics of Power and Privilege. 1 Unit.**

Introduces the relationship between the concepts of identity, power, and privilege with structural and institutional discrimination in the United States.

**RXRX 721. Diversity, Equity, and Inclusion in Health Care. 1 Unit.**

Introduces the roles that diversity, equity, and inclusion play in health-care outcomes and disparities. Prerequisite: RXRX 720.

**RXRX 722. Diversity, Equity, and Inclusion Community Engagement Project. 1 Unit.**

Applies concepts of diversity, equity, and inclusion within the context of community engagement by the preparation of a proposal for a student-managed project addressing a health-care need within a community of the student's choice. Prerequisite: RXRX 720, RXRX 721.

**RXRX 730. Leadership in Pharmacy Education: Diversity, Equity, and Inclusion. 2 Units.**

Applies concepts of diversity, equity, and inclusion within the context of community engagement by preparation of a proposal for a student-managed project that addresses a health-care need within a community of the student's choice.

**RXRX 798. Independent Study with Faculty. 1-4 Units.**

Development of an individual research or project. Includes: description of the research or project; associated budget; and, assessment methods. May be repeated for a total of 4 units toward the 9-unit elective requirement.

## Pharmacy Practice/Drug Information Courses

**RXDI 664. Drug Information and Literature Evaluation. 3 Units.**

Introduces drug information resources, retrieval, and evaluation. Includes: forms of drug literature; primary, secondary, tertiary, and Internet resources; documentation of drug information requests; and, reporting adverse drug reactions. Discusses issues related to herbal medicine and alternative therapeutic options.

## Pharmacy Practice/Therapeutics Courses

**RXTH 529. Strategies for Achieving a Successful Career in Pharmacy. 2 Units.**

Explores factors that determine job satisfaction and success in the pharmacy workplace, as well as contemporary changes in the pharmacist job market that directly affect pharmacist employability. Guides students in the development of strategies that will enable them to effectively compete in a highly competitive job market, optimizing their chances of achieving job satisfaction and success once employed.

**RXTH 560. Pharmacist-Guided Self Care. 5 Units.**

Introduces students to pathophysiology, pharmacologic, and nonpharmacologic management of conditions indicated for self-treatment. Enables students to provide patient-centered care through gathering pertinent information by patient interviewing, assessing the appropriateness of self-treatment or referral, recommending over-the-counter (OTC) products, and developing a patient-specific treatment plan—including patient education, counseling, and follow up.

**RXTH 570. Introduction to Disease Management. 2.5 Units.**

Introduces students to medical terminology, physical examination, interpretation of major diagnostic tests/laboratory results, and important patient safety considerations. Familiarizes students with various disease states—such as benign prostatic hyperplasia, urinary incontinence, glaucoma, gout, osteoarthritis, and rheumatoid arthritis. Prepares students to assess patients and determine the appropriate nonpharmacologic and pharmacologic treatment options for specific conditions.

**RXTH 603. Interprofessional Dental Clinic. 2 Units.**

Provides opportunity for pharmacy and dentistry students to work and learn together in the setting of an urgent care dental facility. Students interview patients and collect data (chief complaint, medical history, medication history, etc.) pertinent to the patients' dental care. Emphasizes the collaboration of different professions to deliver health care and improve the health of patients. Develops communication skills between health care providers.

**RXTH 604. Medical Missions. 3 Units.**

Prepares students to participate in an organized, interprofessional, cross-cultural medical mission trip, health-care experience, or international health program. Includes hands-on, experiential learning that enhances competence in physical assessment. Reviews major chronic diseases encountered in select medical mission destinations, including the appropriate role for student pharmacists in diagnosis and treatment.

**RXTH 605. Advanced Diabetes Management. 2 Units.**

Advances students' knowledge and skills applicable to issues regarding personalized treatment of diabetes. Topics include lifestyle management, social issues, mental health issues, type 1 DM, type 2 DM, and diabetes management technology. Challenges students to use guidelines, literature, personalization, and professional judgment in approaching patient care.

**RXTH 606. Antimicrobial Stewardship. 1 Unit.**

Develops an understanding of the role of the pharmacist in antimicrobials stewardship programs (ASP), as well as the process of ASP. Includes hospital practice and administrative duties associated with ASP.

**RXTH 608. Viral Infections Evidence-Based Therapy. 2 Units.**

Introduces students to chronic hepatitis C virus (HCV) and human immunodeficiency virus (HIV) infections, focusing on evidence-based treatment of these viral infections. Students interpret clinical data for various available therapies that allow them to select patient-specific treatments based on evidence. Students examine issues of internal, external, statistical, and clinical validity as they relate to specific patient cases in HCV and HIV.

**RXTH 609. Advanced Literature Evaluation. 1 Unit.**

Provides an opportunity for students to critically evaluate journal articles in a systematic format. Introduces students to the journal club format of presenting literature and learning how to assess the merit of studies with respect to design, statistical methods, and potential applications.

**RXTH 610. Introduction to Pharmacy Informatics. 1 Unit.**

Provides a foundation for understanding health information technology (HIT) and pharmacy informatics. Presents the HIT and specific informatics language that make up the infrastructure for real-world information management and health information exchange.

**RXTH 614. Parenteral and Enteral Nutrition. 1.5 Unit.**

Provides a comprehensive review of malnutrition in critically ill patients, and discusses the treatment approach based on patient's medical and nutritional status and requirements. Introduces students to therapy-related complications and discusses how to prevent and manage them.

**RXTH 615. Nuclear Pharmacy Concepts. 1 Unit.**

Provides an overview of nuclear pharmacy for P1, P2, and P3 students, including but not limited to: the history of nuclear medicine, an overview of radiation basics, production methods, the regulatory environment, applications of nuclear medicine, and industry direction.

**RXTH 619. Clinical Pharmacokinetic Dosing and Monitoring. 3 Units.**

Integrates the principles of pharmacokinetics—including factors affecting the absorption, distribution, metabolism, excretion, and binding of drugs—into the process of monitoring, evaluating, and adjusting a specific dosing regimen. Teaches students to interpret laboratory results, assess clinical findings, and apply pharmacokinetic principles to determine an individualized dosing regimen for a specific patient, based on drug serum concentrations and clinical circumstances.

**RXTH 671. Fluids and Electrolytes. 2 Units.**

Covers the pathophysiology and management of conditions related to fluid, electrolyte, anemia, acid-base, and nutritional disorders. Discusses pharmacotherapy, dietary requirements, and sources of electrolytes. Enables students to manage these disorders, establish and employ rational treatment, and provide parameters to monitor progress of recommended therapies.

**RXTH 674. Renal and Respiratory Diseases. 3.5 Units.**

Covers the pathophysiology, management, and drug therapy of conditions related to renal and respiratory diseases. Prepares students to manage renal and respiratory diseases, establish and employ rational treatment, and provide parameters to monitor progress of the regimens.

**RXTH 683. Endocrine. 3.5 Units.**

Introduces students to the pathophysiology and disease-state management of common endocrine disorders. Introduces students to pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of these common endocrine disorders. Prepares students to integrate their current knowledge and skills of therapeutics to formulate individualized therapeutic plan for patients. Prerequisite: Completion of all P1 and Autumn Quarter P2 courses.

**RXTH 684. Cardiovascular I. 3.5 Units.**

Teaches the pathophysiology, management, and drug therapy of hypertension, hyperlipidemia, and coronary artery diseases. Includes the pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of these diseases. Emphasizes evidence-based medicine and national guidelines for the management of these diseases. Prepares students to determine the most appropriate treatments and monitoring parameters.

**RXTH 685. Cardiovascular II. 3.5 Units.**

Teaches the pathophysiology, management, and drug therapy of thromboembolic disorders, arrhythmia, stroke, transplantation, pulmonary hypertension, and heart failure. Includes the pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of these diseases. Prepares students to determine the most appropriate treatments and monitoring parameters.

**RXTH 686. Cardiology Clinic Medication Reconciliations. 1 Unit.**

Teaches pharmacy students to conduct medication reconciliation to ensure that the medical team has a complete record and understanding of prescription and non-prescription medications taken by a patient during transition points of care (e.g., admissions, discharges, clinic visits, and moving between institutions or providers). Prerequisite: Third-year student.

**RXTH 701. Pediatric Pharmacotherapy. 2 Units.**

Expands the student's therapeutic knowledge regarding common pediatric disease states and prepares students to identify and address common drug-related problems in pediatric patients. Prerequisite or concurrent\*: RXTH 704\*, completion of winter quarter of PY3 year.

**RXTH 702. Advanced Topics in Neurology and Therapeutics. 2 Units.**

Develops the knowledge and skills necessary for scientific inquiry and promotes an enduring attitude of self-learning. Elements include creative and critical thinking, literature analysis, and discussion of findings. Students assigned projects and activities. Prerequisite: RXTH 771.

**RXTH 703. Advanced Topics in Critical Care. 2 Units.**

Presents disease states and treatments in critically ill patients in the clinical environment. Preparation for clinical rotations and inpatient pharmacy practice.

**RXTH 704. Special Populations. 3 Units.**

Introduces students to the core concepts involved in the care of pediatric and geriatric patients. Expands students' knowledge base of pharmacology, pharmacokinetics, and pharmacodynamics of drugs. Includes anatomy, physiology, pharmacology, pharmacokinetics, pharmacotherapy, and clinical trial evidence. Students integrate knowledge, attitudes, and skills in a variety of ways to accomplish the course outcomes.

**RXTH 708. Mental Health in the Movies. 2 Units.**

Evaluates the depiction of mental health conditions in various media, including books and movies.

**RXTH 709. Home Infusion Pharmacy. 1.5 Unit.**

Provides a comprehensive overview of the management of intravenous therapy to improve clinical competency and reduce the risk of negative outcomes for safely delivering care to patients outside of the hospital or clinic setting. Prerequisite: P3 standing.

**RXTH 757. Advanced Cardiovascular Life Support. 3 Units.**

Focuses on the development of skills necessary for the management of patients with acute cardiovascular emergencies.

**RXTH 771. Central Nervous System II. 3.5 Units.**

Introduces students to management (evaluation, treatment, monitoring, and follow-up) of patients with neurological conditions (Table I). Describes basic pathophysiology of common neurological conditions, along with pharmacokinetic and pharmacodynamic properties of the most common therapeutic agents. Provides practical experience in managing patients with neurological conditions, along with additional comorbid conditions, through case-based activities.

**RXTH 773. Central Nervous System I. 3.5 Units.**

Introduces students to management (evaluation, treatment, monitoring, and follow-up) of patients with psychiatric illnesses (Table I). Describes basic pathophysiology of common psychiatric illnesses, along with pharmacokinetic and pharmacodynamic properties of the most common therapeutic agents. Provides practical experience in managing patients with psychiatric illness, along with additional comorbid conditions, through case-based activities.

**RXTH 774. Gastrointestinal Disorders. 2.5 Units.**

Introduces students to the pathophysiology and management (assessment, evaluation, treatment, monitoring, and patient education) of common gastrointestinal disorders, liver diseases, hepatitis; and other topics such as stress ulcer prophylaxis. Covers the pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of these diseases. Assimilates relevant literature and current guidelines into treatment plans.

**RXTH 775. Oncology. 2.5 Units.**

Introduces student pharmacists to the pathophysiology, pharmacology, and therapeutic management of common hematologic malignancies and solid tumors. Students gain an understanding of the management of adverse side effects due to chemotherapy. Provides an avenue for student pharmacists to practice critical-thinking skills and clinical decision making using interactive, case-based lecturing and recitation cases.

**RXTH 776. Infectious Diseases. 7 Units.**

Introduces pharmacology, pharmacokinetics, and pharmacodynamics of anti-infective agents, as well as the Pharmacists' Patient Care Process, to manage patients with common infections.

**RXTH 782. Special Topics in Pharmacy Practice. 1-4 Units.**

Lecture and discussion on a current topic in pharmacy practice. May be repeated for a maximum of 6 units.

**RXTH 783. Special Topics in Pharmacy Practice. 1-4 Units.**

Lecture and discussion on a current topic in pharmacy practice. May be repeated for a maximum of 6 units.

**RXTH 784. Special Topics in Pharmacy Practice. 1-4 Units.**

Lecture and discussion on a current topic in pharmacy practice. May be repeated for a maximum of 6 units.

**Pharmacy/Social and Administrative Sciences Courses****RXSA 545. Public Health and Lifestyles. 3 Units.**

Introduction to principles of public health and public health practice. Addresses how pharmacy practice interfaces with public health delivery in a variety of settings; identification and evaluation of public health education programs; and, how the pharmacist ensures conditions under which all people can be healthy.

**RXSA 547. Pharmacy Law. 2 Units.**

Introduces students to the most relevant federal and state laws and regulations that define legal and ethical pharmacy practice. Provides students with the tools necessary to practice pharmacy consistent with these standards. Includes lectures, discussions, small-group problem solving, assignments, and examinations.

**RXSA 555. Epidemiology and Public Health. 3 Units.**

Examines the fundamentals of public health epidemiology. Addresses distribution and determinants of health and illness, factors contributing to health promotion and disease prevention, implementation of activities that advance public health and wellness, and immunization delivery.

**RXSA 600. Philippines Medical Mission Preparation. 1 Unit.**

Orientation to cultural, professional, and clinical experiences in the Philippines. Surveys geographical, cultural, and epidemiological history of the Batangas people. Reviews preparation of medications to be dispensed during the mission. Describes the pharmacist's scope of practice in the medical mission and provision of competent pharmacy care. Develops and implements mission responsibilities, tasks, and itineraries.

**RXSA 618. Writing for Publication. 3 Units.**

Addresses publishable, professional writing. Includes: pre-writing exercises, basic components of articles, journal style sheets, bibliographies, citing works within a text, and writing conventions such as mechanics, usage, and sentence formation.

**RXSA 640. Epidemiology and Biostatistics. 3 Units.**

Introduces epidemiology, basic statistical concepts, analytical methods, and medical literature-evaluation techniques. Exposes students to biostatistical concepts through clinical application of statistics, using SPSS7 or other currently available statistical packages. Prerequisite: Successful completion of all P1-level courses; P2; Autumn Quarter standing.

**RXSA 646. Principles of Management. 3 Units.**

Introduces pharmacy students to the five core managerial sciences, i.e., human resource management, operations management, marketing, accounting, and finance. Particularly emphasizes human resource management and operations management skills. Lectures incorporate real-life management cases for discussion, followed by lecture on the principles of management topics.

**RXSA 650. Biostatistics. 3 Units.**

Exposure to commonly used descriptive and inferential statistical techniques. Addresses selection of appropriate parametric and non-parametric statistical tests for research and interpretation of findings in the literature. Includes presentation of statistical information in tabular and graphical formats.

**RXSA 743. Health Systems, Reimbursement, and Pharmacoeconomics. 3 Units.**

Explores health outcomes research and pharmacoeconomic analyses. Includes: cost-benefit analyses across drug treatments; resource allocation; practice guidelines for pharmacoeconomic evaluation; pharmacists' roles in the health-care system; and, drug and clinical pharmacy reimbursement in practice settings.

**RXSA 748. Advanced Topics in Pharmacy Law. 1 Unit.**

Exposes the student to current issues in pharmacy law and regulation both at the federal and state levels. Introduces pending legislation at both the state and federal levels. Assigned legal articles and pending legislation read and presented during class allow the student to become familiar not only with the issue(s) being presented, but also to analyze and present the issues' impact on the practice of pharmacy in general and on the student's personal practice of pharmacy.

**RXSA 750. Wall Street Journal. 1 Unit.**

Students read selected Wall Street Journal health-related articles and discuss the events that have resulted in news coverage each week in the areas of pharmaceutical/biotechnology, providers/insurance, research, policy, and medical products.

**RXSA 751. Social-Behavioral Aspects of Pharmacy Practice. 3 Units.**

Focuses on models and theories of behavior change with particular emphasis on public health, health education, preventive health, health promotion, and pharmacological practice. Includes patient and needs assessments.

**RXSA 757. Clinical Research and Methodology (CRM). 2 Units.**

Builds on the principles of biostatistics and drug information to develop the skills necessary for a practitioner to design and develop a clinical research study worthy of scholarly publication and presentation. Highly recommended for students who wish to pursue a career in managed care, pharmacy practice in an academic setting, or as a clinical coordinator in hospital settings. Offered Spring Quarter of PY3. Prerequisite: Completion of RXDI 664 and RXSA 640 with a grade of B- or better.