Learning Objectives & Outcomes
The Pharmacy Technician Program – 50 Hours

<table>
<thead>
<tr>
<th>Lecture Topics</th>
<th>Pharmacy and Healthcare</th>
<th>The Pharmacy Technician</th>
<th>Drug Regulation and Control</th>
<th>Pharmaceutical Terminology and Anatomy</th>
<th>Prescriptions</th>
<th>Pharmacy Calculations</th>
<th>Routes and Formulations</th>
<th>Parenterals</th>
<th>Compounding</th>
<th>Basic Biopharmaceutics</th>
<th>Factors Affecting Drug Activity</th>
<th>Information and Pharmacy Resources</th>
<th>Inventory Management</th>
<th>Financial Issues</th>
<th>Types of Pharmacy Environments</th>
<th>Drug Names and Classes</th>
<th>Lab Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The history of pharmacology, pharmacy today, computers in pharmacy, the drug industry, patenting discoveries, pharmacy settings</td>
<td>Personal standards, training and competency, certification, role of the pharmacy technician</td>
<td>New drug approval, the Food and Drug Act of 1906, Food, Drug and Insecticide Administration, Harrison Tax Act, 1938 Food, Drug and Cosmetic Act, 1950 Albert Food Products v. U.S., 1951 Durham-Humphrey Amendment, 1962 Kefauver-Harris Amendment, 1966 Fair Packaging and Labeling Act, 1970 controlled substances Act, 1970 Poison Prevention Packaging Act, 1976 Medical Device amendment, 1983 Orphan Drug Act, 1984 Drug Price Competition and Patent Term Restoration Act (Hatch-Waxman), 1987 Prescription Drug Marketing Act, 1990 Omnibus Budget Reconciliation Act (OBRA), 1990 Anabolic Steroid Control Act, 1996 Health Insurance Portability Act, marketing drugs; behind the counter OTC drugs, labeling, controlled substances, DEA forms, public safety, law and the technician.</td>
<td>Root terms, prefixes, suffixes, combining terms, organ system terminology, the cardiovascular system, the endocrine system, the gastrointestinal tract, integumentary system, lymphatic system, muscular system, nervous system, skeletal system, female reproductive system, male reproductive system, respiratory system, urinary tract, the senses, medical abbreviations, drug classifications,</td>
<td>Prescription products, pharmacy abbreviations, the prescription process, measurement abbreviations, parts of a prescription, prescription requirements checklist, the fill process, the pharmacists role, the pharmacist technician role, labels, auxiliary labels, placing the label, institutional labels, medication orders, HIPAA, transcribing prescriptions</td>
<td>Roman numerals, fractions, decimals, significant figures, measurement, metric system, avoirdupois system, apothecary system, household units, conversions, equations and variables, ratio and proportions, percents and solutions, children’s doses, Clark’s rule, body surface area formula, calculations for business, usual and customary price, discounts, net profit, gross profit</td>
<td>Enteral routes: oral, buccal, sublingual, rectal, and Parenteral routes: intraocular, intranasal, inhalation, intravenous, intramuscular, intradermal, dermal, subcutaneous, vaginal , oral formulations, solid formulations, modified release formulations, liquid formulations, sublingual and buccal formulations, rectal formulations, parenteral routes, intravenous formulations, intramuscular routes, subcutaneous routes, intradermal routes, ophthalmic formulations, intranasal formulations, inhalation formulations, dermal; formulations, vaginal formulations</td>
<td>Parenteral characteristics, parenteral routes, LVP solutions, SVF solutions, Administration devices, types of positive pressure pumps, syringes and needles, filters, laminar flow hoods, biological safety cabinets, clean rooms, aseptic technique for hood and cabinets, working with vials, working with ampules, TPN, dialysis solutions, irrigations solutions, Molarity, osmosis, equivalents, percentage weight per volume, international units</td>
<td>Extemporaneous compounding, compounding and manufacturing, compounding regulations, grades of chemicals, storage temperatures, facilities and equipment, ingredient standards, quality assurance and quality control, packaging and storage, documentation and record keeping, compounding considerations, stability and beyond use dates, using a balances, mortars and pestles, spatulas, weighing papers or weighing boats, volumetric equipment, liquid measurement, mixing solids and semisolids, levigation, compounding principles for dosage forms,</td>
<td>Site of action, receptors, selective action, concentration and effect, minimum effective concentration, onset of action, therapeutic window, minimum toxic concentration, duration of action, ADME processes and diffusion, disposition, elimination, passive diffusion, active transport, absorption, distribution, metabolism, excretion, first pass metabolism, enzyme induction, bioequivalence</td>
<td>Age, gender, pregnancy, body weight, psychological factors, genetics, adverse drug reactions, idiosyncrasy, carcinogenicity, hypersensitivity, anaphylactic shock, drug-drug interactions, synergism, potentiation, drug-diet interactions, disease states</td>
<td>Primary literature, secondary literature, tertiary literature, federal and state legal aspects, common references: Drug Facts and Comparisons, Martindale, the Complete Drug Reference, AHFS Drug Information, Handbook on Injectable Drugs, Red Book, American Drug Index, The Merck Manual, PDR, United States Pharmacopeia Drug Information Stedman’s Medical Dictionary</td>
<td>The inventory environment, the formulary, spoilage, turnover, availability, point of sale, perpetual inventory, computers and inventory, automated ordering, order details and documentation, ordering forms, stocking and storing</td>
<td>Third-party payers, co-pays, private health insurance, managed care, deductible, Medicare, Medicaid, online adjudication, claim information, rejected claims, paper claims, billing procedures</td>
<td>Community/Retail pharmacy procedures, customer service, prescription processing, hospital pharmacy duties and responsibilities, unit dose system, automated systems, packaging, medical records, long term care pharmacy, home infusion, and mail order pharmacies</td>
<td>USAN, applying for a name, stems and classes, classification schemes, look-alike/sound-alike names, generic and brand names, analgesics, anti-inflammatory, antineoplastic, cardiovascular agents, dermatological, electrolyte agents, immunobiologic agents, gastrointestinal agents, hematological agents, hormones and modifiers, musculoskeletal agents, neurological agents, ophthalmic agents, psychotropic agents, respiratory agents, top 200 drugs, glossary of terms</td>
<td>Counting Oral Medications, Prescription Interpretation, Transferring a Drug from a Vial, Introducing liquid into an IV Bag, Geometric Diluting Process, Punch Method to Make a Capsule, Inpatient Prescription Medication Order, TPN preparation</td>
</tr>
</tbody>
</table>
Pharmacy Technician Certification Program

Pharmacy Technicians

Pharmacy Technicians work in pharmacies under the direction of a pharmacist. Their main responsibility is filling prescriptions according to doctors' orders. Pharmacy Technicians prepare medications for dispensing to patients. This generally includes retrieving drugs in the correct dosage form and strength, measuring the appropriate amount of drug and producing a prescription label. Pharmacy Technicians work with drugs to be administered orally, topically, for the eye, nose, etc. Depending upon the practice setting, a Pharmacy Technician is also involved in the admixture of drugs for intravenous use. Other duties include:

♦ checking inventories and ordering supplies
♦ receiving and checking in supplies
♦ assisting customers
♦ keeping pharmacy work areas clean
♦ complete insurance forms
♦ preparation of “bingo cards” for nursing home patients

Pharmacy Technicians – Employment & Education

Pharmacy Technicians may work in retail pharmacies, mail order pharmacies, home infusion pharmacies, long term care facilities, hospitals, clinics, pharmacy benefit managers and large industrial complexes. The demand for Pharmacy Technicians continues to grow with demand expected to increase substantially through 2014. This high demand is the result of the constant availability of new drugs, the national shortage of registered pharmacists, the establishment of certified pharmacy technicians and the aging population.

Educational Requirements
Students should have taken math and science in high school. A high school diploma or GED is required to sit for the PTCB exam.

Pharmacy Technician Certification Program

This comprehensive 50 hour course will prepare students to enter the pharmacy field and to take the Pharmacy Technician Certification Board’s PTCB exam.

Course content includes medical terminology specific to the pharmacy, reading and interpreting prescriptions and defining drugs by generic and brand names. Students will learn dosage calculations, I.V. flow rates, drug compounding, dose conversions, dispensing of prescriptions, inventory control and billing and reimbursement. The Pharmacy Technician Certification Program includes a graded final exam to help prepare students for the PTCB exam.

Pharmacy Technician Detailed Course Information:

♦ role of the pharmacy technician
♦ pharmacy history/discussion of various practice settings and the technician certification process
♦ recruiting by pharmacy specialty
♦ “Evolution of Pharmacy”
♦ review of hospital pharmacy setting, retail practice, regulatory agencies involved with a pharmacy practice, long term care practice setting, mail order pharmacy, home care pharmacy practice
♦ pharmacy measures, roman numerals, abbreviations
♦ review of generic drugs, basic biopharmaceuticals, dosage forms, patient profiles
♦ prescription label requirements, order transcription, ordering and inventory control, drug pricing, third party reimbursement
♦ formularies, unit dose systems, emergency and crash carts, house supplies, automatic stop orders, calculating number of doses required
♦ all major classes of drugs including top brand names and generic drugs
♦ aseptic technique, handling of sterile products including antineoplastic agent considerations
♦ basics of IV solutions, calculating 24 hour supply of IV solutions, percentages and electrolytes preparations
♦ the metric system
♦ apothecaries’ and avoirdupois systems of measurement
♦ children’s doses
♦ allegation method, math review
♦ Total Parenteral Nutrition (TPN), demonstration of TPN admixture, hands-on practice of IV admixture and parenteral medication preparation