

MARYLAND ROOM

OFFICIAL PUBLICATION  
OF THE  
UNIVERSITY OF MARYLAND  
*(Founded 1807)*

School of Pharmacy  
(THE MARYLAND COLLEGE OF PHARMACY: 1841 to 1904.)



Eightieth  
Annual Announcement  
1923-1924

ISSUED BY THE  
SCHOOL OF PHARMACY  
Northeast Corner Greene and Lombard Streets  
Baltimore, Maryland

# Calendar of Session, 1923-1924

1923

Fall Examinations for admission to the Second Year Class:	September 24.....	{ Chemistry, 9 A.M. Pharmacy, 2 P.M.
	September 25.....	{ Practical Chemistry, 9 A.M. Practical Pharmacy, 2 P.M.
	September 26.....	{ Botany, Materia Medica and Vegetable Histology, 9 A.M. Physics, 2 P.M.
	September 27.....	{ Mathematics, 9 A.M. Physiology and Hygiene, 2 P.M.
	September 28.....	{ German, 9 A.M. English, 2 P.M.

October 1—Regular Session begins.  
October 11—Last Day for Matriculation.  
November 29—Closed (Thanksgiving Day).  
December 21—Christmas Recess begins after last lecture.

1924

January 2—Lectures resumed 9 A.M.  
February 22—Closed (Washington's Birthday).  
April 17—Easter Recess begins after last lecture.  
April 22—Lectures resumed, 9 A.M.  
June 7—Commencement.

## University Endowment Fund

This Fund is in the hands of a Board of Trustees incorporated under the Laws of the State and consisting of nine alumni of the University, its legal title being "The Trustees of the Endowment Fund of the University of Maryland." The Board is independent and self-perpetuating and its owners are limited to the expenditures of the interest of the Fund only. The following are its present members: Hon. Henry Stockbridge, LL.D., President; John B. Thomas, Ph.G.; Harry Adler, M.D.; Charles Markell, LL.B.; J. M. H. Rowland, M.D.; Arthur M. Shipley, M.D.; Stuart S. Janney, LL.B.; Daniel Baker, Jr., Esq., and Horace M. Davis, D.C.D., Treasurer. Contributions to the University or that of any of the departments should be sent to Hon. Henry Stockbridge, 75 Gunther Building, Baltimore. Make checks payable to the Treasurer.

Board of Regents  
of the  
University of Maryland

SAMUEL M. SHOEMAKER, Chairman. Term expires 1925.  
Eccleston, Baltimore County, Maryland.

ROBERT CRAIN. Term expires 1924.  
Munsey Building, Washington, D. C.

JOHN M. DENNIS, Treasurer. Term expires 1923.  
Union Trust Company, Baltimore, Maryland.

DR. FRANK J. GOODNOW. Term expires 1931.  
President, Johns Hopkins University, Baltimore, Md.

JOHN E. RAINE. Term expires 1930.  
413 E. Baltimore St., Baltimore, Maryland

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DR. W. W. SKINNER, Secretary. Term expires 1928.  
Kensington, Montgomery County, Maryland.

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## The University Council

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## Faculty

E. F. KELLY, Phar. D., *Dean*.

B. OLIVE COLE, Phar. D., LL.B., *Secretary*.

### PHARMACY—

E. F. KELLY, Phar. D., Professor of Pharmacy.

J. CARLTON WOLF, B. Sc., Phar. D., Professor of Dispensing.

JOHN C. KRANTZ, JR., Ph. C., Phar. B., Associate Professor of Pharmacy.

LOUIS J. BURGER, Ph. G., LL.B., Lecturer on Pharmaceutical Jurisprudence.

WM. L. REINDOLLAR, Ph.G., Assistant in Pharmacy.

STANLEY L. CAMPBELL, Ph.G., Assistant in Dispensing.

### MATERIA MEDICA

DAVID M. R. CULBRETH, A.M., Ph.G., M.D., Professor Emeritus of Botany and Materia Medica.

CHAS. C. PLITT, Ph.G., Sc.D., Professor of Botany and Materia Medica.

B. OLIVE COLE, Phar. D., LL.B., Associate Professor of Botany and Materia Medica.

### CHEMISTRY—

NEIL E. GORDON, Ph.D., Professor of Chemistry.

H. E. WICH, Phar.D., Associate Professor of Chemistry.

-----, Assistant in Chemistry.

### PHYSIOLOGY & HYGIENE and BACTERIOLOGY—

ROBERT L. MITCHELL, Phar.D., M.D., Professor of Physiology and Hygiene, and Bacteriology.

H. J. MALDEIS, M.D., Associate Professor of Bacteriology.

### GENERAL EDUCATIONAL SUBJECTS—

W. E. CUTCHIN, Phar.D., LL.B., Professor of Business Administration.

C. F. KRAMER, A.M., Associate Professor of Modern Languages.

J. H. SCHAD, M.A., Associate Professor of Mathematics.

F. M. LEMON, A.M., Associate Professor of English.

C. G. EICHLIN, M.S., Professor of Physics.

GEO. S. SMARDON, Comptroller.

W. M. HILLEGEST, Registrar.

# The University of Maryland

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For more than a century the University of Maryland has played a conspicuous and forceful part in the professional education and training of a nation, and particularly of Maryland and the Southern States.

Control of the University of Maryland is vested in a board of nine Regents, appointed by the Governor and confirmed by the Senate for terms of nine years each. The general administration of the University is vested in the President. The University Council is an advisory body, composed of the President, the Assistant to the President, the Director of the Extension Service, and the Deans. The University Council acts upon all matters having relation to the University as a whole, or to co-operative work between the constituent groups. Each school has its own Faculty Council composed of the Dean and members of its faculty; each Faculty Council controls the internal affairs of the group it represents.

The University has the following educational organization:

- The College of Agriculture.
- The College of Engineering.
- The College of Arts and Science.
- The School of Medicine.
- The School of Law.
- The School of Dentistry.
- The School of Pharmacy.
- The College of Education.
- The College of Home Economics.
- The Graduate School.
- The College of Commerce and Business Administration.
- The Summer School.
- The Department of Military Science and Tactics.
- The Department of Physical Education and Recreation.

The Schools of Medicine, Law, Pharmacy, and Dentistry, and College of Commerce and Business Administration are located in Baltimore, at Lombard and Greene Streets; the others in College Park.

## THE SCHOOL OF PHARMACY.

This was organized in 1841, largely at the instance of members of the Faculty of Medicine, and, for a time, the lectures were delivered at the medical school. Later it became separated and continued an independent organization, as the Maryland College of Pharmacy, until it finally became part of the University in 1904. With but one short intermission, previous to 1865, it has continuously exercised its functions as a teaching school of pharmacy.

## POLICY AND DEGREES.

The chief purpose of this college has been to prepare its matriculants for the intelligent practice of dispensing pharmacy, without overlooking the fact that there exist other divisions of the profession and that all need to be scientifically taught. With this in view, the School of Pharmacy has arranged a graded course, so that it may, first, build for the student a well ordered foundation, upon which the pharmaceutical specialist can be developed. Upon completion of the first two years of the course the diploma of Graduate in Pharmacy (Ph. G.) is awarded, which admits the holder to the board examinations in the various states for registration as a pharmacist. In this basic division of the course, in addition to the work as specified in the Pharmaceutical Syllabus, general educational subjects are included, sufficient to give the successful students full collegiate credit, and they become eligible for admission into the Medical School of the University of Maryland, upon further completion of six semester hours in Zoology.

The diploma of Pharmaceutical Chemist (Ph. C.) will be awarded upon the completion of the work prescribed for the third year of the course.

In accordance with the decision of the American Conference of Pharmaceutical Faculties to discontinue the two year course in 1925, the diploma of Graduate in Pharmacy will be given to students registering in 1925 and thereafter, until further notice, upon the completion of three years of the course as then outlined, and the diploma of Pharmaceutical Chemist will then be discontinued.

The degree of Bachelor of Pharmacy will be given upon completion of the work prescribed for the entire course of four years.

## RECOGNITION.

This school holds membership in the American Conference of Pharmaceutical Faculties. The object of the Conference is to promote the interests of pharmaceutical education and all institutions holding membership must maintain certain minimum requirements for entrance and graduation. Through the influence of this Conference, uniform and higher standards of education have been adopted from time to time, and the fact that several states by law or by Board ruling recognize the standards of the the Conference is evidence of its influence.

This school is registered in the New York Department of Education, and by the Boards of Pharmacy of Ohio and other states that maintain a registration bureau.

Its diploma is recognized in all states.

## REQUIREMENTS FOR MATRICULATION.

The applicant must have completed a four year standard high school course, or its equivalent. A minimum age of seventeen years is demanded except when the candidate is a graduate of an accredited high school or of an institution of equal grade.

Admission to the course in pharmacy is by certificate issued by the Registrar of the University of Maryland, Lombard and Greene Streets, Baltimore, Md. The certificate is issued on the basis of credentials, or by examination, or both. Evaluation of credentials can be made only by the Registrar, and all applicants, whether their entrance qualifications are clearly satisfactory as per the requirements for matriculation outlined above, or not, must secure a certificate from the Registrar to be presented to the School of Pharmacy before they can be matriculated.

Applicants should secure an Application Blank for entrance from the Registrar of the University or from the office of the School of Pharmacy, and return it properly executed at the earliest possible date. Diplomas or certificates need not be sent. The Registrar will secure all credentials desired after the Application Blank has been received and the applicant will be notified of the result of the investigation.

Applicants whose credentials do not meet the requirements must stand an examination in appropriate subjects to make up the required number of units. The fee for such examination is one dollar per subject; five dollars for the entire number of subjects.

Credit will be given for pharmaceutical subjects to those students coming from schools of pharmacy holding membership in the American Conference of Pharmaceutical Faculties, provided they present a proper certificate of the satisfactory completion of such subjects and of honorable dismissal, and also meet the entrance requirements of this school. Credit for general educational subjects will be given to those students presenting evidence of having completed work of equal value.

#### REQUIREMENTS FOR GRADUATION.

1. The candidate must possess a good moral character.
2. He or she must have successfully completed the work specified in the first two years of the course if a candidate for the Graduate in Pharmacy (Ph. G.) diploma; or three years if a candidate for the Pharmaceutical Chemist (Ph. C.) diploma; in each instance the last year to be taken in this school.

#### PRACTICAL EXPERIENCE.

Although four years of employment in a pharmacy is still upheld by some schools as a requisite for graduation, it is believed it will be found upon close investigation that such training, although valuable, should not be made a requirement for diploma in a professional school. Consequently, the School of Pharmacy some years ago abolished, as an essential, the apprenticeship requirement, which had been established at a time when practical instruction did not form a part of the curriculum.

It is not intended, however, to lead prospective students of pharmacy to underestimate the advantages accruing from a knowledge of the contents and appliances of a pharmacy or familiarity with its daily routine, but to urge them to secure employment, if possible, before entering college and especially during the summer vacation. This is particularly advisable, since the Pharmacy Law of Maryland and most other states requires four years of practical experience for full registration and two years of practical experience for registration as an assistant pharmacist. The time spent in a recognized college is credited towards the practical experience required to the extent of two years for full registration and one year in the case of registration as an assistant pharmacist.

#### SPECIAL STUDENTS.

An applicant who cannot furnish sufficient entrance credentials and does not care to make up the units in which deficient, may enter as a special student and pursue all the branches of the curriculum, but will not be eligible for graduation and will not receive a diploma. The School of Pharmacy reserves the right to decide whether or not the preliminary training of the applicant is sufficient.

### CONDITIONS.

Each session extends over eight months and is divided into semesters. Examinations will be held at the end of the first semester in all branches, the results from which together with the reports from the laboratories, will become a part of the final record of the student in the particular class to which he belongs. At intervals written and oral reviews will be given and the result thereof will form part of the final rating. Final examinations will be held at the end of the second semester, and the student's standing in each subject will be determined by the average of all the ratings obtained therein. The faculty will advise students, who for any reason, would not likely be able to complete the course, to withdraw from the school.

*No student will be admitted to the examination in any branch in which he or she has not attended at least eighty-five per cent. of the classes therein. Further absences will not be excused.*

Reports showing the standing of the students will be sent out at the end of the session. The passing grade is 75 per cent. From 50 to 74 per cent. inclusive is a condition and less than 50 per cent. is a failure. The students who fail are not eligible to re-examination, but must repeat the subject.

A student will not be permitted to take up Dispensing Pharmacy until the other laboratory work in the Pharmacy has been completed.

### TABLE OF FEES.

Matriculation, paid but once.....	\$5.00
For Full First Year.....	175.00
For Full Second Year.....	175.00
For Full Third Year.....	175.00
Graduation fee (returned in case of failure).....	10.00
Yearly charge to cover breakage.....	10.00

### SPECIAL FEES.

Students who wish to take special subjects and not the full curriculum are expected to matriculate and make necessary arrangements as to charges.

Students who find it desirable or necessary to repeat a subject will be expected to pay the proportional charge.

In addition to the fees, there are some additional expenses, such as for books, which cost about \$50.00, for lens, section cutters, etc., for Materia Medica laboratories, metric weights and some special apparatus which cost about \$10.00.

### MATRICULATION AND REGISTRATION.

The Matriculation Tickets must be procured from the office of the School of Pharmacy, and must be taken out before entering the classes. All students after proper certification are required to register at the Office of the Registrar. The last date of registration is October 11th.

### PAYMENTS.

Tuition for the first semester and breakage fee shall be paid to the Comptroller at the time of registration; and tuition for the second semes-

ter and graduation fee (returned in case of failure) on or before February 1, 1924.

Failure to meet these conditions will automatically debar the student from attendance on classes and other privileges of the University.

#### EXPENSES.

The personal expenses of the student are as low in Baltimore as in any large city in the United States, and in many cases are lower, but will, of course, vary according to the habits and desires of the individual. Good board and lodging can be had for about \$10.00 per week and upwards, particularly if two or three persons room together.

Information regarding good boarding houses in the neighborhood of the University may be obtained at the office of the School.

#### EMPLOYMENT

It is very desirable, on account of the large number of hours required for laboratory work, lectures and study, that students should come prepared to sustain themselves during their collegiate term, yet a number annually succeed in finding suitable employment in the city. The officials of the school stand ever ready to aid in securing positions for those students to whom employment is desirable.

#### THE CHARLES CASPARI, JR., SCHOLARSHIP.

To perpetuate the memory of Prof. Charles Caspari, Jr., late Dean of the School of Pharmacy, and at the same time be in accord with the modesty and lack of ostentation, and eagerness for service and helpfulness to others, that were strikingly characteristic of Professor Caspari, numerous friends and alumni have contributed funds to establish a scholarship by his name. It will be awarded to a member of the Second Year Class of this School on the basis of scholarly attainments and need of financial assistance, by the faculty of the school.

#### PRIZES.

*General.*—A gold medal will be awarded at each annual commencement to the candidate for the diploma of Graduate in Pharmacy, whose department is creditable, and who has attained the highest general average, not below 90 per cent.

Certificates of Honor will be awarded to the three students having the highest general average, next to the winner of the general prize, provided this does not fall below 90 per cent.

*Chemistry.*—In honor of the late Dr. William Simon, for thirty years professor in the Maryland College of Pharmacy, now the School of Pharmacy, University of Maryland, a gold medal will be awarded to a candidate for the diploma of Graduate in Pharmacy for superior proficiency in the field of practical and analytical chemistry. This medal will be known as the Simon Prize, and the recipient must stand high in all branches and must have the endorsement of the whole faculty. In recommending a student for the prize the professor of chemistry will be guided in his judgment of the student's ability as much by observation and personal contact as by marks made in examination.

*First Year.*—Honorable mention will be made of the first three students having the highest general average, provided this does not fall below 90 per cent.

# Description of Curriculum

## PHARMACY.

PROFESSOR KELLY, ASSOCIATE PROFESSOR KRANTZ  
AND ASSISTANT REINDOLLAR.

*First Year.*—This will comprise an historical review of pharmacopœias and a study of the weights and measures in authoritative use by pharmacists in the United States, Great Britain, Germany and France. The physicochemical principles and manipulations underlying pharmacy will be elucidated and their direct usefulness demonstrated. The various manipulations to which crude drugs are subjected during the process of preparation for dispensing and administration will be discussed in detail. These include the various methods of pulverization, separation, etc. Those simpler pharmaceutical preparations in the production of which no complicated processes are resorted to will be studied.

The laboratory work will embrace manipulations, such as the use of the various systems of weights and measures; the finding of specific gravity and adjustment of the same; determination of solubility; filtration; distillation; purification of salts; preparation of infusions, decoctions, aromatic waters, glycerites, elixirs, tinctures, syrups, emulsions, triturations, powders, lozenges, pills, ointments, etc.

In conjunction with the laboratory work attention will be given to the mathematics of pharmacy. The conversion of weights and measures from one system to another, concentration and dilution, alligation, etc., will be discussed. The student will be expected to solve such problems as are peculiar to the practice of pharmacy.

Three lectures weekly during entire year; two laboratory periods of three hours weekly during second semester.

*Second Year.*— Fluid and solid extracts and oleoresins will be studied in detail. Chemicals and their important pharmaceutical preparations will be discussed with accompanying explanations of the various tests of purity. The more important medicinal agents derived from the vegetable and animal kingdom will be studied with relation to their use in pharmacy, special attention being given to those official. The concluding lectures will be devoted to a general consideration of the pharmaceutical essay processes.

The laboratory work will embrace the preparation of fluid, solid and powdered extracts, oleoresins and resins; and in order to familiarize the student with all classes of products, types of those official galenicals and other pharmaceutical preparations involving complicated processes or chemical reactions will be prepared and later standardized if required.

Three lectures weekly during the entire year, and two laboratory periods of three hours weekly during the first semester.

*Third Year.*—The study of assay processes of the United States Pharmacopœia and the National Formulary begun in the second year will be continued and followed by those methods employed by Food and Drug analysts in the assay of drugs and their preparations, official as well as unofficial. Later, attention will be given to the determination of ash content, extractives, alcoholic percentages and such other proc-

esses as give a thorough working familiarity with the official authorities and such others as the "New and Non-official Remedies," foreign Pharmacopœias, etc. In connection with the above, the student will be required to make for these assays, as many of the more complicated pharmaceuticals as is practicable, so as to broaden his experience in manufacturing processes.

Three lectures and nine hours laboratory weekly during entire year.

#### DISPENSING.

PROFESSOR WOLF AND ASSISTANT CAMPBELL.

*First Year.*—This will be preliminary work devoted to familiarizing students with utensils, appliances and non-medicinal material used in dispensing, and to elementary training in dispensing technique, including the proper selection of containers, paper, twine and corks; and the folding of powder papers and filters. The instruction and practice will include the dispensing of prescriptions of simpler substances and the proper methods of labeling and finishing prescriptions generally.

One lecture and one laboratory period of two hours weekly during first semester.

*Second Year.*—The work of this year will be devoted to discussions bearing on the personality of the pharmacist, store conduct and management, on the proper service of patrons, and to the discussion and preparation of the more intricate and exacting prescriptions of physicians as they appear in the larger city pharmacies. Great care will be taken to make this course so comprehensive that it will include consideration of types of all classes of such prescriptions, that graduates may be able to meet the varying and special dispensing requirements of all localities.

In this branch instruction will be given in *Pharmaceutical Latin* in order that students shall become proficient in Latin case endings and prescription writing.

Two lectures and two laboratory periods of two hours each weekly during the second semester.

#### PHARMACEUTICAL JURISPRUDENCE.

MR. BURGER.

This subject is designed to acquaint the students with the laws which pertain to pharmacy, such as regulation of the practice of pharmacy, poison laws, anti-narcotic laws, national and state pure food and drug laws, etc.

One lecture weekly during the second semester of the second year.

#### BOTANY AND MATERIA MEDICA.

PROFESSOR PLITT AND ASSOCIATE PROFESSOR COLE.

##### BOTANY.

*First Year.*—Inasmuch as a correct description and understanding of official plant parts demand a knowledge of the source from which they are derived, one semester is devoted to structural botany (organography), wherein is given a comprehensive view of plant life and classification along with specific details and physiology of all plant structures.

While the chief aim is to acquaint students with the variety of forms under each division, it is scarcely less an object to afford a familiarity with the botanic language (nomenclature) employed in the Phar-

macopœia and other scientific works, without which much of value would necessarily be obscure and unintelligible.

Two lectures and two laboratory hours weekly during first semester of first year.

#### MATERIA MEDICA.

The second semester of the first year is devoted to materia medica, and the lectures embrace the several methods of classifying medicinal agents; define therapeutic terms, pharmaceutic preparations, and names indicating medicinal properties; describe conditions modifying the action and dose; and treat as many vegetable drugs as time permits. The sequence followed is that of families (natural orders), accepting the system of Engler and Prantl in their "Die Naturlichen Pflanzenfamilien," and also Britton and Brown's "Illustrated Flora."

Two lectures and two laboratory hours weekly during second semester of first year.

*Second Year.*—This is devoted entirely to materia medica, posology and toxicology, the organic drugs (vegetable and animal) being studied according to family sequence and the following important points: botanic or zoologic source, habitat, family (natural order), commercial history, methods of obtaining, etc., physical properties and characteristics of official parts, constituents, composition, preparations, doses, medicinal properties and uses, antidotes and treatment for poisonous quantities, etc. The inorganic drugs are considered from the sequence of chemical relationship, the points dwelt upon being the doses, medicinal properties, uses, antidotes and treatment for poisonous quantities.

Two lecture and laboratory hours weekly during entire second year.

*Third Year.*—The work of this year will be mainly of laboratory character—pharmacognosy and vegetable histology, under which headings a more detailed account will be found.

#### VEGETABLE HISTOLOGY.

A knowledge of the use of the microscope and the structure of plant tissues is really imperative for a proper investigation of the structure and adulterations of medicinal plants.

*First Year.*—The work of this year is mainly microscopic botany. It includes a study of the mechanism of the microscope and its theory of action; practical manipulations of the instrument; the art of cutting sections, staining and making mounts of them; the study of the lower plant organisms, as yeast, bacteria, algae and fungi, the study of the primitive vegetable cell and its numerous subsequent modifications, which form the various tissues as found in the higher plants, and relative arrangement of these which give rise to the various kinds of stems, roots and leaves.

One period of three hours weekly (one hour lecture and two hours laboratory) during the first semester.

*Second Year.*—During the first semester a thorough microscopic study is made of all plant structures, especially emphasizing differences in stem, rhizome and root structure; differences between monocotyledonous structures etc.

The work of the second semester consists mainly of the study of powdered drugs for their own structure, as well as for adulterations. This is of considerable importance, since the majority of drugs are furnished to the pharmacist at the present day in powdered condition, in

which form spurious parts cannot be detected by mere inspection, but only by use of microscope.

One period of three hours weekly (one hour lecture and two hours laboratory) during the second semester.

*Third Year.*—This will be a continuation of the work of the second semester of the second year and will involve the study of micrometry, stains, powdered drugs, spices and their adulterations. At this time when physicians often look to pharmacists for information regarding microscopes and accessories, and solutions and stains for histological work, the student will do well to give careful attention to these subjects. Opportunity will also be given for properly guided research work.

One period of three hours weekly during year.

#### PHARMACOGNOSY.

*First and Second Years.*—The object sought is to familiarize the students with the appearance and physical characteristics of the various drugs that they may be able to detect adulterations or admixtures of foreign substances which might possibly be found in commercial drugs of vegetable origin. That this may be possible, each student is supplied with liberal samples of all the official drugs.

The subject is given in conjunction with the laboratory work in materia medica, and drugs are studied in the order in which they are taken up in the lecture room, more attention being given to their gross structure than to their minute anatomy.

*Third Year.*—The subject will be closely united with Vegetable Histology and the study of drugs will be restricted to their microscopic structure.

One laboratory period of two hours weekly during the entire year.

#### CHEMISTRY.

PROFESSOR GORDON, ASSOCIATE PROFESSORS WICH AND KRANTZ  
AND ASSISTANT— — —

The first year is devoted to the study of inorganic chemistry, including qualitative analysis, and the second year to organic chemistry including quantitative analysis. A pharmaceutical *atmosphere* is given the course as far as is consistent with the fundamental facts of chemistry.

*First Year.*—The first semester is devoted to a study of the non-metals from the standpoint of physical chemistry and the second semester to a qualitative study of the metals. The inductive investigational method is followed through the entire course.

The laboratory work will embrace a number of experiments bearing on general chemistry, and analytical reactions of the acids and metals and qualitative analysis, such attention being given to insure that the student fully understands the purpose of the experiments.

Three lectures and one laboratory period of three hours weekly during the first semester; two lectures and two laboratory periods of three hours each during the second semester.

*Second Year.*—It is the aim of this course to give the student a thorough understanding of the fundamentals of organic chemistry and its application to pharmacy. The groups of compounds, as alcohols, ethers, acids, fats, sugars, etc., will be discussed and important members studied in detail.

The laboratory work will consist of the qualitative determination of the elements present in organic compounds; the preparation of the

simpler types of organic chemicals official in the Pharmacopœia, such as chloroform, acetanilide, alcohol, benzene, picric acid, etc. Instruction in qualitative technique, preparation of volumetric solutions and determinations, will be given. Special emphasis is laid on the chemical assays of the Pharmacopœia, alkaloidal evaluation of vegetable drugs and preparations, volatile oil assays, iodine and saponification numbers of fats, and polariscopic estimations. Preparations made in the pharmacy laboratory are used for examination in this laboratory.

Two lectures and two laboratory periods of three hours each weekly during the year.

*Third Year.*—This will embrace a continuation of qualitative and gravimetric determinations, with special reference to those of the U. S. P. and N. F., typical inorganic preparations and their purification, continuation of lectures in organic chemistry, organic preparations and their examinations, physical constants, etc.

In addition, instruction will be given in physical and colloidal chemistry, embracing molecular weight determinations; velocity of reactions; chemical equilibrium; measurements of conductivity; migration of ions; properties of colloid systems; general energetics of dispersoids and the concept of colloidal chemistry.

The student will have opportunity to do properly guided research work.

Three lectures and twelve hours laboratory weekly during the year.

## PHYSIOLOGY AND HYGIENE.

PROFESSOR MITCHELL.

The preliminary lectures are devoted to elementary anatomy and histology of the organs of the body. Then follows the discussion of the functions of bones and bone marrow, muscles, the blood and lymph, spleen, respiration, digestion, absorption and assimilation, function of the kidneys, skin and ductless glands, the nervous system, etc. This study of the body and its functions affords an excellent preparation for the intelligent study of drugs in reference to their effects when taken into the body.

The subject of Hygiene is considered under the heads of: personal hygiene, domestic hygiene and sanitation, and public hygiene and sanitation.

Two lectures weekly during the first year.

## BACTERIOLOGY.

PROFESSOR MITCHELL AND ASSOCIATE PROFESSOR MALDEIS.

The lectures cover an historical sketch, classification and general characteristics of micro-organisms and the common protozoa, culture media and methods of isolating and cultivation, the use of animals for diagnostic and test purposes, animal inoculations and autopsies from the bacteriologic standpoint, relation of micro-organisms to disease, immunity active and passive, anaphylaxis and serum sickness, preparation and use of antitoxins, vaccines, sera, etc., molds, yeasts, etc., pathogenic organisms, individually considered, bacteria in the industries, disinfection and disinfectants, insecticides and germicides, food and drug preservatives, sterilization and disinfection in pharmacy, communicable diseases, epidemiology with special reference to carriers of disease and methods of serum diagnosis.

Students are required to do all the preparation in connection with routine laboratory work. They prepare all common media, grow and study all forms of pathogenic organisms, together with molds, yeasts, etc., and bacteriologically examine milk, water, urine, etc. Two lectures and two hours laboratory per week during third year.

#### BUSINESS ADMINISTRATION.

PROFESSOR CUTCHIN.

Students will be carefully instructed regarding business forms and practices, especially as they apply to the affairs of the pharmacist. Actual exercises will be given in bookkeeping, correspondence, banking, salesmanship, inventories, insurance, and contracts.

Ninety days of actual business history must be transcribed to proper accounts and the full set of books, that hold these accounts, with trial balances and balance sheets must be handed to the professor in charge, on the day of examination. Three hours weekly during first semester of the second year.

#### ENGLISH.

ASSOCIATE PROFESSOR LEMON.

The work will be principally composition and rhetoric, including parts, principles and conventions of effective thought communication; reading, study and analysis of standard contemporary prose specimens; daily short papers and semester themes.

Three periods weekly during second year.

#### MATHEMATICS.

ASSOCIATE PROFESSOR SCHAD.

The work of the first semester will be principally algebra, including quadratic equations, simultaneous quadratic equations, progressions, graphs, logarithms, etc.

The work of the second semester will be mainly trigonometric functions, including development of formulas and their application to the solution of trigonometric equations and of right and oblique triangles.

Three periods weekly during first year. (Candidates for the diploma of Graduate in Pharmacy are required to complete only the first semester).

#### PHYSICS.

PROFESSOR EICHLIN.

The laws, principles, and theories that govern the various physical phenomena in sound, light, magnetism, electricity, mechanics, and heat are discussed in lectures and recitations.

The experimental proof of these laws and their demonstration as applicable to the problems of pharmacy are conducted in the laboratory.

*First Semester.*—Sound, light, magnetism, electricity.

*Second Semester.*—Mechanics, heat.

Three lectures and three hours laboratory weekly during first year.

## GERMAN.

ASSOCIATE PROFESSOR KRAMER.

The work of the first semester of the first year, especially for those who have not had German in high school, will consist principally of drills in pronunciation, elements of grammar, composition, conversation and dictation.

The work of the second semester of the first year will include syntax, composition, conversation, translation and reproduction; selections from modern prose, poetry and fiction.

The work of both the semesters of the second year will be devoted to scientific German, including the reading and translation of scientific texts and periodicals; original reproductions of texts read; and lectures on scientific nomenclature.

Three periods weekly during the first and second years.

### TEXT BOOKS.

U. S. Pharmacopœia, National Formulary, Simon's Manual of Chemistry, Norris' Organic Chemistry, Schimpf's Volumetric Analysis, Caspari's Treatise on Pharmacy, Culbreth's Pharmaceutical Botany, Culbreth's Materia Medica and Pharmacology, Sturmer's Pharmaceutical Arithmetic, Martin's Human Body, Hiss and Zinser's Bacteriology, Gordon's Project Study in Chemistry, Chapin's Second Year College Chemistry. Text books on the general educational subjects will be announced at the opening of course.

*Books of Reference.*—National Standard Dispensatory, United States Dispensatory, Remsen's Theoretical and Organic Chemistry, Beal's Chemical Arithmetic, Prescott & Johnson's Qualitative Analysis, Scoville's Art of Compounding, Gray's New Lessons in Botany, Rusby & Jelliffe's Morphology and Histology of Plants, Holland's Medical Chemistry and Toxicology, Howell's Text Book of Physiology, Park and William's Bacteriology, Jordan's Bacteriology, Hough & Sedgwick's The Human Mechanism, Schneider's Pharmaceutical Bacteriology, Gray's Manual of Botany, Steven's Plant Anatomy.

### IMPORTANT NOTICE.

*The rules and conditions stated in this prospectus will govern students until the next succeeding issue, after which time they will be governed by the conditions stated in the latter.*

# Roll of Students

SESSION OF 1922-1923.

Albrecht, Walter Edward,	Maryland	Gerber, Miss Minnie.....	Maryland
Andrews, Marvin Jackson,	Maryland	Glass, Louis Joseph.....	Maryland
	Tennessee	Goldberg, Victor.....	Maryland
Archer, Theodore.....	Maryland	Goodman, Jerome.....	Virginia
Baker, Israel.....	Poland	Greenberg, Harry.....	Maryland
Barall, William Louis,		Hampson, Carol Augustus,	
	Pennsylvania		Maryland
Barnes, Robert Dudderar,		Hantman, Harry H.....	Maryland
	Maryland	Harryman, Chauncey Brooks,	
Basil, George C., Jr.....	Maryland		Maryland
Bettigole, Philip.....	Maryland	Hayes, William Bradford	
Blechman, Charles.....	Maryland		Maryland
Bindok, Edward Joseph.....	Maryland	Hecker, Nathaniel.....	Maryland
Block, Frank.....	Maryland	Henderson, Upshur Kerr, Jr.,	
Block, Solomon George.....	Virginia		Virginia
Calmen, Elmon Herman		Higger, Samuel.....	Maryland
	Maryland	Hinton, Murray Sherman,	
Carey, Alfred Robus.....	Maryland		Maryland
Carlner, Louis A.....	Russia	Hirschowitz, Reuben Joseph	
Carrera, Thomas C.....	Porta Rico		Maryland
Chertkof, Miss Frieda.....	Maryland	Hopkins, Miss Josephine Edna	
Cohen, Bernard Julius.....	Maryland		Maryland
Cohn, Nathan.....	Maryland	*Hope, John William, Jr. ...	Virginia
Coplin, Louis Isaac.....	Maryland	Hurwitz, Louis.....	Russia
Corrado, Ernest M.....	New Jersey	*Jones, Charles Hampson, Jr.,	
Cowan, William C.....	Maryland		Maryland
Davies, Sydney P.....	Maryland	Jones, Henry Alvan.....	Maryland
Davidov, Louis.....	Maryland	Kalb, Francis Patrick.....	Maryland
Donnet, John.....	Maryland	Katz, Benjamin Ralph.....	Russia
Eldridge, Arthur Clement		Kelley, Guy Charlton.....	Maryland
	Maryland	Kern, Joseph.....	Russia
Fedder, Eli.....	Maryland	Kirson, Abraham.....	Maryland
Fields, Lorraine D.....	Maryland	Kirson, A. Robert.....	Maryland
Finkelstein, David.....	Maryland	King, Melvin LeRoy.....	Maryland
Finkelstein, Morris Louis		Kolman, Miss Minnie.....	Maryland
	Maryland	Kramer, Morris.....	Maryland
Fisher, Edward Hamilton,		Kronthal, Jacob Louis.....	Maryland
	Maryland	*LeGrande, George William	Virginia
Fisher, Michael Augustine,		Leibowitz, Louis.....	Delaware
	Pennsylvania	Levin, Abraham.....	Russia
Flom, Charles.....	Russia	Levin, Bernard.....	Maryland
Freiman, Harry H.....	Maryland	Levin, Harry.....	Russia
Gaver, Paul Glenn.....	Maryland	*Levin, Morton.....	Russia
		Little, Luther Emanuel,	Maryland

McCormick, Arthur Felix	Quebec	Scher, Michael	Maryland
McKay, William Kenney	Virginia	Schlein, Maurice	Russia
Marmor, Leon	Maryland	Schmidt, Charles J., Jr.	Maryland
Marciniak, Edward Stanley,		Schmidt, George Matthews,	
	New Jersey		Maryland
Matthews, Vincent William,		Schoenfeld, Benjamin	Maryland
	Maryland	Schuster, John Nelson	Maryland
Mattox, William Henry	Georgia	Shapiro, Henry	Maryland
Mears, Chase Kellam	Virginia	Shea, Harold Joseph	Maryland
Mears, Lee Kerns	Maryland	Sheehan, John Leo,	
Meikie, John Donald	Maryland		New Hampshire
Miller, Leo	New York	Slama, Frank James	Maryland
Millman, Morton Max,		Sloan, James Joseph,	
	Rhode Island		West Virginia
*Monen, Joseph B.	Maryland	Smith, Francis Edward,	
Moran, John Edward,			West Virginia
	New Hampshire	Solomon, Simon Samuel,	
Mullen, Charles Lawrence,			Maryland
	Maryland	Sothoron, Levin J., Jr.	Maryland
Musgrove, Walter G.	Maryland	Stacy, Theodore E. Jr.	Illinois
Neel, Jerrold Wilbur, Jr.,		Stagmer, Owen Rudisill	Maryland
	Maryland	Staley, Clifton Beall	Maryland
Norton, Mrs. Anna Cover,		Strawn, James Sanson,	
	Maryland		Pennsylvania
Parsons, Herman Dewey	Maryland	Sussman, Hyman J.	New Jersey
Pass, Victor Earl	Maryland	Swiskowski, Frank Leonard,	
Paulson, Aaron Ariel	Maryland		Maryland
Peleaz, Jose y Bringas,		Tenner, David	Russia
	Santiago de Cuba	Van Slyke, Amos Root	Maryland
Pfeifer, Charles Edward		Vidal, Manuel Jesus,	
	Maryland		Santiago de Cuba
Poltilove, George Joseph,		Voigt, Herman Albert	Maryland
	Maryland	Voshell, Harvey Walls	Maryland
Raap, Irvin Leonard	Maryland	Wagner, Raphael Hyman	Austria
Reamer, Israel T.	Maryland	Warfield, Harry Nelson	Maryland
Rezek, George Jaroslav	Maryland	Warrenfeltz, J. Frederick Fahrney,	
Ritt, Paul Edward	Maryland		Maryland
Robinson, Robert	Maryland	Weinberg, Sol Barth	Virginia
Rockman, Morris	Maryland	Weiner, Solomon	Maryland
Rodman, Morris	Russia	Wilkerson, Albert Russell	
Rosenthal Emanuel	Maryland		Maryland
Rosenthal, Louis	Maryland	Wilson, Julian Frances,	
Rubin, Meyer	New York		Pennsylvania
Rubinstein, Hyman Solomon,		Wright, Mrs. Edna Kirk,	
	Leeds, England		Maryland
Samuelson, Oscar	Maryland	Wright, Lawrence Malcolm,	
Sanner, Richard Thomas,			New Jersey
	Maryland		

#### SPECIAL STUDENTS

*Ginsberg, Abraham	Maryland	Von Schultz, Augustine Paul,	
*Kraus, Louis Henry	Maryland		Maryland
Varney, William Henry	Maryland	Walter, Frank Pierce,	
			Pennsylvania

\*Did not attend entire session.

# Roll of Graduates

## GRADUATES IN PHARMACY.

—June 9, 1923—

Albrecht, Walter Edward .....	Maryland
Baker, Israel .....	Poland
Barall, William Louis .....	Pennsylvania
Basil, George C., Jr. ....	Maryland
Block, Solomon George .....	Virginia
Carliner, Louis A. ....	Russia
Chertkof, Miss Frieda .....	Maryland
Cohen, Bernard Julius .....	Maryland
Coplin, Louis Isaac .....	Maryland
Donnet, John .....	Maryland
Eldridge, Arthur Clement .....	Maryland
Fields, Lorraine D. ....	Maryland
Finkelstein, Morris Louis .....	Maryland
Flom, Charles .....	Russia
Freiman, Harry H. ....	Maryland
Glass, Louis Joseph .....	Maryland
Hecker, Nathaniel .....	Maryland
Hinton, Murray Sherman .....	Maryland
Katz, Benjamin Ralph .....	Russia
Kelley, Guy Charlton .....	Maryland
Kirson, A. Robert .....	Maryland
Kramer, Morris .....	Maryland
Leibowitz, Louis .....	Delaware
Levin, Harry .....	Russia
Marmor, Leon .....	Maryland
Mattox, William Henry .....	Georgia
Moran, John Edward .....	New Hampshire
Musgrove, Walter G. ....	Maryland
Norton, Mrs. Anna Cover .....	Maryland
Rockman, Morris .....	Maryland
Rosenthal, Emanuel .....	Maryland
Rosenthal, Louis .....	Maryland
Stacy, Theodore E., Jr. ....	Illinois
Stagmer, Owen Rudisill .....	Maryland
Van Slyke, Amos Root .....	Maryland
Voigt, Herman Albert .....	Maryland
Wagner, Raphael Hyman .....	Austria
Weinberg, Sol Barth .....	Virginia
Wright, Lawrence Malcolm .....	New Jersey

PHARMACEUTICAL CHEMIST.

Andrews, Marvin Jackson .....Tennessee

BACHELOR OF PHARMACY.

Krantz, John Christian, Jr. ....Maryland

HONOR ROLL —SESSION 1922-1923

Gold Medal for General Excellence—Mrs. Anna Cover Norton.

Simon Prize for Practical Chemistry—Mrs. Anna Cover Norton.

Senior Class, Honorable Mention—Harry H. Frelman, Harry Levin.

Junior Class, Honorable Mention—Henry Alvan Jones,  
Harry H. Hantman,  
Charles Blechman

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