

# THE UNIVERSITY OF MISSOURI BULLETIN

VOLUME 21, NUMBER 18

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GENERAL SERIES

1920, No. 10

## SCHOOL OF MEDICINE

ANNOUNCEMENT 1920-21



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ISSUED THREE TIMES MONTHLY; ENTERED AS SECOND-CLASS MAT-  
TER AT THE POSTOFFICE AT COLUMBIA, MISSOURI—4,500

JUNE, 1920



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# UNIVERSITY CALENDAR

Session 1920-21

## *Fall Term*

|               |                                       |
|---------------|---------------------------------------|
| 1920          |                                       |
| August 30, 31 | Monday, Tuesday, registration         |
| September 1   | Wednesday, 8 a. m., class work begins |
| November 25   | Thursday, Thanksgiving Day, holiday   |
| December 22   | Wednesday, noon, fall term ends       |

## *Winter Term*

|             |  |                                    |
|-------------|--|------------------------------------|
| December 31 | }  | .....Friday, Saturday registration |
| 1921        |  |                                    |
| January 1   |  |                                    |
| January 3   | .....Monday, 8 a. m., class work begins      |                                    |
| February 22 | .....Tuesday, Washington's Birthday, holiday |                                    |
| April 24    | .....Sunday, Baccalaureate Address           |                                    |
| April 27    | .....Wednesday, Commencement Day             |                                    |

## *Spring-Summer Term*

|           |  |
|-----------|--|
| April 28  | .....Thursday, registration                      |
| April 29  | .....Friday, 8 a. m., class work begins          |
| June 21   | .....Tuesday, first half of term ends            |
| June 22   | .....Wednesday, second half of term begins       |
| July 4    | .....Monday, the Fourth of July, holiday         |
| August 17 | .....Wednesday, 4 p. m., spring-summer term ends |

# SCHOOL OF MEDICINE

## UNIVERSITY OF MISSOURI

### HISTORICAL STATEMENT

The Medical Department of Kemper College ("McDowell Medical College"), founded in St. Louis in 1840, was the first medical school established west of the Mississippi River. In 1845 this school became the Medical Department of the University of Missouri. In 1855, however, it was discontinued, but was re-established in Columbia in December, 1872. The curriculum was at first only two years in length, but was extended to three years in 1891, and to the full four years in 1899.

Owing to the limited clinical facilities available at present, the last two (clinical) years of the medical curriculum have been temporarily suspended. A plan for the establishment of a general state hospital has been adopted by the University, and the clinical portion of the work will be resumed as soon as it is practicable to establish it with adequate clinical facilities. In the meantime, the first two years of the medical curriculum will be continued at Columbia and still further strengthened.

The School of Medicine has always stood for the highest standards of medical education, and was a pioneer in introducing and developing the laboratory method. Laboratory work in anatomy, chemistry, and microscopy was required of students from the date of re-establishment in 1872. A few years later laboratory work in pathology and in physiology was added, and in 1891 the laboratories of histology and bacteriology were established. The School of Medicine of the University of Missouri was also one of the first schools to place these fundamental medical sciences in charge of specialists who are not allowed to practice medicine, but devote their time exclusively to teaching and investigation.

*Organization and Support:* The nature of the organization and support of a medical school is a matter of primary importance. The School of Medicine of the University of Missouri is an integral part of the University, whose total income from all sources is about \$1,125,000 a year. The School of Medicine is supported from this income, about \$50,000 being expended annually for this purpose (including hospital), while less than \$3,000 is collected in fees from the medical students.

As a result of this liberal support, it has been possible for many years to organize and maintain the medical work on a proper University basis. The course of study is carefully planned, modern laboratory methods being used thruout. The high standards of admission result in small classes, prepared for the highest type of work. Women are admitted on equal terms with men.

*High Standing of the School:* The School of Medicine of the Uni-

versity is rated in the highest class by the Council on Medical Education of the American Medical Association. It is also a member of the Association of American Medical Colleges. In the report of the Carnegie Foundation published in 1910, the facilities of the School of Medicine of the University of Missouri are summarized (p. 251) as follows: "The medical department occupies a new and well equipped building, excellently adapted to its purposes. The teaching is in charge of full-time instructors of modern training and ideas. A university hospital of forty-five beds gives the department the advantage of clinical material and connection, even tho the actual instruction is limited to the work of the first two years, a feature of great importance. There is a library supplied with important current periodicals, domestic and foreign."

#### EXPENSES

*Low Cost of Medical Education:* Another advantage is the unusually low cost at which premedical and medical education of the highest type may here be obtained.

Tuition at the University of Missouri is free to residents of the state but a library, hospital and incidental fee of \$15 is charged for each registration. Nonresident students must also pay a tuition fee of \$10 a term.

*The Commons:* The Commons, under University management, is open to both men and women. It consists of a cafeteria in which meals are served at very reasonable rates.

#### *Estimated Expenses for One Term:*

|                            |       |
|----------------------------|-------|
| Fees .....                 | \$25  |
| Board .....                | 95    |
| Rent .....                 | 25    |
| Laundry .....              | 15    |
| Books and stationery ..... | 15    |
| Miscellaneous .....        | 50    |
|                            | <hr/> |
| Total .....                | \$225 |

These estimates show the expenses of the *average* male student. Expenses for a woman will usually be \$25 higher. No provision is made in the estimates for clothing and railway fares. Non-resident students are required to pay an additional nonresident tuition fee of \$10 a term.

A student wishing to economize can save about \$15 a term by boarding at The Commons. He can reduce room rent about \$20 by living in the University dormitory. Miscellaneous expenses listed above cover amusements, organization dues, etc. Some saving may be made in them. The item for books and stationery will vary with the college or school in which work is taken. Laboratory fees will also vary.

Students who desire work should apply to the Employment Bureau,

Y. M. C. A., University of Missouri. As a rule, every student should have at least \$100 ahead at the start, and those who come before school opens have the best chance for employment. Board may be obtained in private families for from \$6 to \$7.50 a week.

*Rollins Scholarship:* The Rollins Scholarship in the School of Medicine is a prize of \$50 which is awarded by vote of the medical faculty to that member of the first year class (third year of combined curriculum) who has made the best record during the course.

*Register of Students:* At commencement in April, 1920, the Medical Certificate was awarded to twenty-five students. During the session 1919-20 there were enrolled thirty-nine in the first year class, twenty-eight in the second year class, a total of sixty-seven. The names of these students are published elsewhere in this announcement.

## BUILDINGS AND EQUIPMENT

Next to the faculty, among the factors which determine the efficiency, come the buildings and material equipment. The School of Medicine is located upon the same campus with other divisions of the University. Of the various buildings on the campus, a group of three—the Medical Laboratory Building, the Parker Memorial Hospital and the animal house—are devoted primarily to the School of Medicine. These will be described in some detail. Several other buildings are also utilized in part for medical instruction.

*Medical Laboratory Building:* The Medical Laboratory Building is a stone and brick building, 48 x 150 feet, three stories high. It was especially designed for the medical laboratories, and is well equipped to meet the needs of modern laboratory instruction and research. The following is a brief list of the various rooms and equipment in this building:

The department of anatomy and histology occupies a large dissecting room, well lighted and ventilated, with dissecting tables, students' lockers, display cases for specimens, models, and advanced anatomical laboratory, especially equipped for the study of topographic anatomy, including serial sections thru formalin hardened bodies; histological laboratory, with preparation and store-room in connection, thoroly equipped with lockers, tables, microscopes, microtomes, and other apparatus for instruction and research in microscopic work; lecture room for anatomy and histology, equipped with Auzoux manikin, projection apparatus, charts; museum and study room; with adjacent preparation room, containing a large number of models and specimens in human anatomy, research laboratory; embalming and storage rooms, with an abundance of well preserved cadavers for the work in dissection.

The department of physiology, physiological chemistry, and pharmacology occupies the following rooms: a large laboratory with adjoin-

ing store-room, equipped with tables, lockers, and sets of apparatus for the students in physiology and pharmacology; a blood pressure room, particularly for mammalian experiments; a research laboratory, thoroly equipped, for advanced students in physiology and pharmacology; research laboratory in physiological chemistry; large students' laboratory with adjacent store-room, thoroly equipped for work in physiological chemistry; animal room; mechanic's shop; lecture room (in common with pathology).

The departments of pathology and bacteriology occupy a large students' laboratory for bacteriology and pathological histology, well equipped with lockers, microscopes with oil immersion lenses; a preparation room for bacteriology, with sterilizers, incubators; private laboratory, well equipped for research work in pathology; room for autopsies and work in gross pathology, including a collection of pathological specimens in glass cases; an animal room and store-room; office and research laboratory for bacteriology; lecture room (in common with physiology); laboratory room for work of preventive medicine.

*Medical Library:* No medical school of today can be considered well equipped without a good library. The medical library is placed in a room on the upper floor of the Medical Laboratory Building, and is open six hours daily, except Sunday. It contains 6,500 bound volumes, and a large number of pamphlets. The principal medical works of reference are included and 100 leading medical periodicals of the world are received regularly and placed on file. Complete sets of most of these journals are available. The main University Library also contains many works of interest and value to the medical sciences.

A complete catalog of the books and periodicals in the medical library will be furnished free by the University Librarian upon request. The journals and books in the library will be lent free to any reputable physician of the state. The borrower is required to pay the transportation charges both ways.

Provision is also made for sending out circulating libraries to county medical societies arranged in circuits. For information, address the University Librarian, or Dean of the Faculty of Medicine, University of Missouri, Columbia, Missouri.

*Animal House:* The animal house is located near the Medical Laboratory Building. It is a brick structure, well lighted, heated, and ventilated. This building provides excellent facilities for rearing and preserving animals, and for investigations in the various lines of medical science. It is of especial value for the experimental work in physiology, pathology and bacteriology.

*Other Buildings:* In several other buildings on the University campus (chemistry, zoology, etc.), instruction is offered in many lines open to medical students as electives, and of especial service to those



taking the combined curriculum in medicine and in arts and science. The gymnasium and athletic grounds are open for the use of all students, and special opportunities are offered to those interested.

### ENTRANCE REQUIREMENTS

The requirements for admission to the School of Medicine include:

(1) Fifteen units, the equivalent of a four years' high school course, including at least 3 units of English, 1 unit in mathematics, 2 units in one foreign language, the remaining being elective. For further details, see general catalog of the University.

(2) Two years (60 hours' credit) of college work, including French or German, 8 hours; general zoology, 8 hours; general physics, 8 hours; inorganic chemistry, 8 hours; organic chemistry, 5 hours; general bacteriology, 3 hours; and such other subjects as are included in the undergraduate requirements of the College of Arts and Science of the University of Missouri. See the general catalog of the University.

All correspondence regarding admission should be addressed to The Registrar, University of Missouri, Columbia, Missouri.

*Advanced Standing:* Every applicant for advanced standing is required to present credentials from an accredited college, and to pass such examinations as may be required to show satisfactory completion of courses equivalent to those for which he seeks credit.

Moreover, the usual entrance requirements to the first year class must be satisfied, and evidence of a good moral character must be presented to the dean of the faculty of medicine.

Special students will not be admitted to the school.

### COMBINED WORK IN ARTS AND MEDICINE

Students who have completed the secondary school work, as above outlined, but not the college work, are advised to enter the College of Arts and Science of the University to secure this work.

By the proper choice of electives in the College of Arts and Science, students may within four years complete the two years' college work required for admission, do the two years' work in medicine, and at the same time meet the requirements for the degree of Bachelor of Arts. Such students are registered during the first two years in the College of Arts and Science only. During the last two years, however, they must register both in the School of Medicine and in the College of Arts and Science and must meet the requirements of both. Students are recommended to elect the subjects required, or which lead up to subjects required in medicine in approximately the order suggested by the following tabulated statement. The work outlined for the first and second years includes all the college work which is required for entrance to the regular medical curriculum.

The entrance requirement for the combined curriculum outlined above is that specified for the College of Arts and Science, i. e., a high school course equivalent to fifteen units. A student who follows this curriculum will, at the end of four years, have completed the requirements for the A. B. degree. He will also have completed the two years' work in medicine, and will require only two years more (or six years in all) for the M. D. degree. Students who wish to do more than the required amount of premedical collegiate work may extend the time to the amount desired. All students who contemplate taking this work should consult the dean of the faculty of medicine.

CURRICULUM LEADING TO THE DEGREES OF A.B. AND M.D.  
RECOMMENDED BY THE MEDICAL FACULTY.

| <i>First Year</i>                                 | First<br>Term<br>Hours<br>Credit | Second<br>Term<br>Hours<br>Credit |
|---|----------------------------------|-----------------------------------|
| English .....                                     | 3                                | 3                                 |
| German or French 1f and w, 2f and w .....         | 5                                | 5                                 |
| Physics 1f and w and 2w .....                     | 5                                | 3                                 |
| Elem. Logic or Gen. Mathematics .....             | 3                                | 0                                 |
| Chemistry 1 or 2f and w .....                     | 0                                | 5                                 |
| Military and Physical Education .....             | 1                                | 1                                 |
|   | <hr/>                            | <hr/>                             |
|   | 17                               | 17                                |
| <br><i>Second Year</i><br><br>                    |                                  |                                   |
| Zoology 1f and w and 4w .....                     | 5                                | 5                                 |
| Chemistry 25f and w 110f and w .....              | 5                                | 5                                 |
| Gen. Bacteriology (Botany 3f and w) .....         | 0                                | 3                                 |
| History 1f and w .....                            | 5                                | 0                                 |
| Military and Physical Education .....             | 1                                | 1                                 |
| Elective .....                                    | 0                                | 2                                 |
|   | <hr/>                            | <hr/>                             |
|   | 16                               | 16                                |
| <br><i>Third Year</i><br><br>                     |                                  |                                   |
| Same as first year of regular medical curriculum  |                                  |                                   |
| <br><i>Fourth Year</i><br><br>                    |                                  |                                   |
| Same as second year of regular medical curriculum |                                  |                                   |

Premedical students should keep in mind the desirability of observing certain sequences when planning the work of the first two years of the combined curriculum. The proper sequences are the following:

THE PHYSICAL GROUP.

- (1) Elementary Physics, 1f and w.
- (2) Elementary Physics, 2w.
- (3) General Laboratory Physics 20f and w.

THE CHEMICAL GROUP.

- (1) Elementary Inorganic Chemistry, 1 or 2f and w.
- (2) Analytical Chemistry, 25f and w.
- (3) Organic Chemistry, 110f and w.
- (4) Physiological Chemistry, 101f.

THE BIOLOGICAL GROUP.

- (1) General Zoology, 1f and w.
- (2) Comparative Anatomy of Vertebrates, 4w.
- (3) Parasitology, 106w.
- (4) Embryology of Vertebrates, 101f.
- (5) Gross Anatomy, 102f and 103w.
- (6) Normal Histology, 104w.
- (7) Neurology, 105f.
- (8) Experimental Physiology, 105f.

THE BACTERIOLOGICAL-PATHOLOGICAL GROUP.

- (1) General Bacteriology, 3f and w.
- (2) Medical Bacteriology, 102w.

The work above outlined in the regular medical curriculum provides a thoro training in the various subjects usually included in the first two years of medicine. It meets the requirements of the Association of American Medical Colleges, of which this school is a member, and follows closely the ideal courses in the laboratory subjects recommended by the Council on Medical Education of the American Medical Association. The individual courses are described in detail on the following pages.

**MEDICAL CURRICULUM**

| <i>First Year</i>             | Term Credits |            | Hours        |                 | Total |
|-------------------------------|--------------|------------|--------------|-----------------|-------|
|                               | 1st<br>Term  | 2d<br>Term | Lec-<br>ture | Labo-<br>ratory |       |
| Embryology .....              | 3            | .....      | 16           | 64              | 80    |
| Gross Anatomy .....           | 8            | 4          | 32           | 384             | 416   |
| Histology .....               | 5            | .....      | 32           | 128             | 160   |
| Physiological Chemistry ..... | .....        | 5          | 32           | 144             | 176   |
| Neurology .....               | .....        | 3          | 16           | 80              | 96    |
| Medical Bacteriology .....    | .....        | 4          | 32           | 80              | 112   |
|                               | -----        | -----      | -----        | -----           | ----- |
|                               | 16           | 16         | 160          | 880             | 1040  |
| <br><i>Second Year</i>        |              |            |              |                 |       |
| Physiology, 103f .....        | 2            | .....      | 16           | 48              | 64    |
| Physiology, 105f .....        | 6            | .....      | 48           | 144             | 192   |
| Metrology and Prescription    |              |            |              |                 |       |
| Writing .....                 | 1            | .....      | 16           | 32              | 48    |
| Pathology .....               | 4            | 4          | 64           | 224             | 288   |
| Hygiene .....                 | 2            | .....      | 32           | .....           | 32    |
| Pharmacology .....            | .....        | 4          | 32           | 96              | 128   |
| Physical Diagnosis .....      | .....        | 3          | 48           | 32              | 80    |
| Minor Surgery .....           | .....        | 2          | 16           | 32              | 48    |
| Elective .....                | .....        | 3          | .....        | .....           | 112   |
|                               | -----        | -----      | -----        | -----           | ----- |
|                               | 15           | 16         | 272          | 608             | 992   |

**STATEMENT OF COURSES**

*Course Numbers:* Courses for underclassmen are designated by numbers below 100; courses for upperclassmen and graduates, by numbers 100-199; courses primarily for graduates, numbers 200-299.

The letter following the number of a course indicates the term in which it is offered; thus course 100f is offered during the fall term, 100w during the winter term. The number of hours' credit given for a course is indicated by the Arabic numeral in parenthesis following the statement of the course.

**ANATOMY**

102f. **GROSS ANATOMY.** The study of the gross anatomy of the head and trunk of the human body, excepting the central nervous sys-

tem and sense organs. For use in the study of osteology, which is correlated with the work in dissection, a complete disarticulated human skeleton is issued to every two students. (8) *Mr. Clark; Mr. Muir; Mr. Settles.*

103w. GROSS ANATOMY. A study of the gross anatomy of the extremities of the human body. (4) *Mr. Clark; Mr. Gaebler; Mr. Muir.*

104f. HISTOLOGY. The study of the microscopic anatomy of the tissues and organs of the human body. (5) *Mr. Johnson; Mr. Gaebler.*

105w. NEUROLOGY. A study of the gross and microscopic anatomy of the central nervous system and sense organs. (3) *Mr. Stowers; Mr. Settles.*

106f and 106w. TOPOGRAPHIC ANATOMY. Elective. Open to students who have completed the course in gross anatomy, histology and neurology. (2) or (3) *Mr. Clark.*

107w. STUDY-ROOM COURSE IN ANATOMY. Elective. Prerequisite course 102f. Dissected parts of the body are preserved and are available for informal study or review. This study may be combined with a study of cross-sections. (2 or 3) *Mr. Clark.*

206f and 207w. ADVANCED ANATOMY. Elective. Prerequisites, courses 102f, 104f or 105w. Advanced work will be given in any of the special fields of anatomy, the amount and character of which will be varied to suit individual needs. *Mr. Clark.*

208f and 209w. RESEARCH. Problems for original investigation will be assigned in anatomy, histology, or embryology. A reading knowledge of French and German is recommended. *Mr. Clark.*

#### BACTERIOLOGY AND PREVENTIVE MEDICINE

102w. MEDICAL BACTERIOLOGY. Prerequisite, botany, course 3f. Subjects studied include relation of bacteria to disease; the fundamental principles of immunity, serum diagnosis, serum and vaccine therapy. The different diseases are discussed, and the micro-organisms causing them are studied in the laboratory, with animal inoculations and demonstrations. The course includes also the study of the best known diseases caused by protozoa. (4) *Mr. Ravenel; Mr. McBurney.*

101w. GENERAL HYGIENE. Prerequisite, course 102w. Deals in a more detailed manner with the fundamental principles of public and personal hygiene and with the regulatory measures directed toward the improvement of general health. (2) *Mr. Ravenel; Mr. McBurney.*

201f or w. ADVANCED BACTERIOLOGY. Elective. Prerequisite, course 102w. Amount and character of work will depend on needs and qualifications of students. The manufacture of autogenous vaccines, the determination of the opsonic index, making and use of various sera, study of milk and water are among the subjects suggested for study. Hours to be arranged. *Mr. McBurney.*

202f or w. RESEARCH. Elective. Prerequisite, course 102w. Students who are sufficiently prepared will be given problems requiring original investigation in the fields of bacteriology and public health. A reading knowledge of French and German recommended. Hours to be arranged. *Mr. Ravenel.*

203f or w. CONDUCT OF PUBLIC HEALTH LABORATORIES. Elective. Prerequisites, course 102w and 201. Designed for those who expect to take up such work as a profession or for teaching purposes. Graduates in medicine preferred. The collection and shipment of various specimens, their examination, milk, and water problems, etc., will be discussed and the practical work carried out in the laboratory. Hours to be arranged. *Mr. Ravenel; Mr. McBurney.*

### CLINICAL MEDICINE AND SURGERY

101w. PHYSICAL DIAGNOSIS. Lectures, demonstrations and practical exercises covering the field of the physical examination of the thorax. Practice in the use of instruments ordinarily used in auscultation and percussion especially with reference to the recognition of the physical signs of normal and disease processes in the respiratory and circulatory organs. (3) *Mr. Stine.*

102w. MINOR SURGERY. The lectures on the general principles of surgery include the consideration of asepsis and antisepsis, inflammation, healing of wounds, hemorrhage and sepsis. Material for demonstration of the minor surgical lesions is obtained from the dispensary. The laboratory periods are devoted to a study of bandaging and the preparation and use of surgical material and dressings. Each student will have twelve lessons on the practical application of bandages, including the general principles in the use of plaster bandages, adhesive dressings, splints, etc. The preparation of dressings and instruments is studied in the hospital. Practical work in preparation for operation and surgical technic is carried out in the animal operating rooms. Co-operation with the bacteriological laboratory makes it possible to emphasize the importance of careful technic by requiring the students to keep a complete bacteriological check on their work. (2) *Mr. Conley.*

### PATHOLOGY

101f. PATHOLOGY AND PATHOLOGICAL ANATOMY. A laboratory course, supplemented by lectures and recitations, for the histological study of the general and special manifestations of disease. (4) *Mr. Dolley; Miss Guthrie.*

102w. PATHOLOGY AND PATHOLOGICAL ANATOMY. A continuation of 101f which is a prerequisite for this course. (4) *Mr. Dolley; Miss Guthrie.*

201f and 202w. ADVANCED PATHOLOGY. Elective. The amount and character of the work will depend upon the needs and qualifications of the student. *Mr. Dolley; Miss Guthrie.*

203f, 204w and 205sp. RESEARCH. Elective. A reading knowledge of German is required and one of French is recommended. *Mr. Dolley.*

206sp. PATHOLOGICAL PHYSIOLOGY. Elective. An experimental course. (2) *Mr. Dolley; Miss Guthrie.*

#### PHYSIOLOGY AND PHARMACOLOGY

102w. GENERAL PHYSIOLOGICAL CHEMISTRY. Prerequisite, organic chemistry, course 110 or equivalent. (5) *Mr. Gulick; Mr. Ellis.*

103f. PHYSIOLOGY OF ALIMENTARY MECHANICISM. The physiology of secretory processes, digestive mechanics, absorption, excretion, metabolism and energy exchange, heat regulation, and reproduction. (2) *Mr. Greene; Mr. Ellis.*

105f. EXPERIMENTAL PHYSIOLOGY. The physiology of circulation, respiration, muscle and nerve, nervous system, and sense organs. (6) *Mr. Greene; Mr. Ellis.*

108w. PHARMACOLOGY. The physiological action of drugs from the experimental point of view. The demonstrations are made on man and the lower animals. (4) *Mr. Greene; Mr. Ellis.*

110f. METROLOGY AND PRESCRIPTION WRITING. Pharmaceutics and physiological assay, including a study of weights, measures, dosage and prescription writing. (1) *Mr. Greene.*

109w. CHILD DEVELOPMENT AND GROWTH. Prerequisite, elementary physiology, 1w, or equivalent. A course of lectures and assigned reading, with special emphasis on factors that influence the capacities of the developing nervous system. (1) *Mr. Greene.*

115f and 116w. ADVANCED PHYSIOLOGY CHEMISTRY. A course supplementing and extending course 101f. The preparation and chemistry of the proteins; a qualitative and quantitative study of the tissues, secretions, of enzymes, and of putrefaction. The prosecution of a short investigation and formal report on the same are required. (2-4) *Mr. Gulick.*

117f and 118w. TOXICOLOGY. Prerequisite, course 115f, 116w, or 108w. (2) or (3) *Mr. Gulick.*

122w. PHYSIOLOGY OF RESPIRATION. A more advanced consideration of the normal and modified respiratory activities of man and various animals in response to external and internal factors. The laboratory work includes a short detailed investigation and report on some phase of the subject. (3) *Mr. Ellis.*

124w. THE CIRCULATORY SYSTEM. An advanced consideration of the normal heart and blood vascular apparatus and their functional modifi-

cation by drugs and by disease. Cardiography is emphasized. A short investigation is required. (2-4) *Mr. Greene.*

225f. THE PHYSIOLOGY OF THE NERVOUS SYSTEM. The method of operative lesion is applied to the central nervous system and to nerve pathways. (2) *Mr. Greene.*

227f and 228w. JOURNAL CLUB. Review of current literature. (1) *Mr. Greene.*

231f and 232w. ADVANCED PHYSIOLOGY. Elemental problems in physiology, physiological chemistry, or pharmacology will be assigned in preparation for research. *Mr. Greene; Mr. Gulick; Mr. Ellis.*

241f and 242w. INVESTIGATION. Opportunity is offered for research into questions of current interest. *Mr. Greene; Mr. Gulick.*

### ZOOLOGY

101f and 101sp. EMBRYOLOGY OF VERTEBRATES. Designed to lay the foundation of vertebrate embryology. Successive stages in the development of the frog, the chick, and the pig are studied from preparations of entire embryos and from serial sections. These observations are used as a basis of comparison for the study of human embryology. (3) *Mr. Lefevre; Mr. Tannreuther.*

For comparative anatomy, cytology, protozoology, parasitology, and other courses in zoology open to medical students as electives, see the University catalog.

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### ELECTIVES

Courses in botany, psychology, zoology, may be elected by students in the School of Medicine who are prepared to pursue them. See the University catalog. With the consent of the dean, medical students may take any accessory work offered in other departments of the University. Students must elect from a group of courses approved by the Faculty of Medicine a minimum of three hours of work in the second term of the second year of the Medical Curriculum.

### MEDICAL CERTIFICATE

On completing the work outlined in the regular medical curriculum, the student is awarded a Medical Certificate at the following commencement. This certificate will admit him, with full credit for the first two years of medicine, to the leading medical schools, where abundant clinical facilities are available for the last two years' work. Care should be taken, however, to meet the detailed entrance requirements for the particular school chosen.



## GRADUATE WORK IN MEDICAL SCIENCES

Special opportunity is given, and every encouragement is offered, to students who desire to do advanced work in any of the fundamental medical sciences. By a year of graduate work, the degree of Master of Arts (A. M.) may be secured, and in three years the degree of Doctor of Philosophy (Ph. D.). Advanced work of the research type in the fundamental medical sciences is highly desirable as a basis for the most thoro work in clinical medicine. It is especially advantageous, however, for those students who desire to specialize with a view to becoming teachers in any of these branches. The demand for such teachers far exceeds the supply, and offers an attractive career which many graduates of this school have followed with success. Fellowships and scholarships are available to those who are qualified for graduate work. For further details, see the University catalog or separate announcement of the Graduate School, University of Missouri.

To conduct research work successfully, it is self-evident that the teachers themselves should be active investigators. Such teachers are, moreover, as is proved by experience, those whose interest and enthusiasm for their work is also the source of inspiration for their undergraduate students. From every point of view the encouragement of research work is therefore a matter of highest importance.

## THE PARKER MEMORIAL HOSPITAL

*Staff*

|                         |                           |
|-------------------------|---------------------------|
| DAN G. STINE .....      | Medicine                  |
| DUDLEY S. CONLEY .....  | Surgery                   |
| GUY L. NOYES .....      | Eye, Ear, Nose and Throat |
| A. W. KAMPSCHMIDT ..... | Anesthesia                |
| M. P. RAVENEL .....     | Bacteriology              |
| D. H. DOLLEY .....      | Pathology                 |
| FRED O. COE .....       | Radiographer              |
| CHARLES W. DIGGES ..... | Consulting Dental Surgeon |

*Officers*

|                             |                                     |
|-----------------------------|-------------------------------------|
| GUY L. NOYES, M. D. ....    | Superintendent                      |
| MANCE TAYLOR, R. N. ....    | Principal of the School for Nurses  |
| LOUISE HILIGASS, R. N. .... | Instructor in the School for Nurses |

By the gift of William L. Parker, the University has an excellent hospital. In the words of the donor, the hospital is "for the benefit of the School of Medicine." The building is a handsome, modern structure, on high ground at the west side of the campus.

A surgical amphitheater adjoining the hospital has been provided by the gift of the late Adolphus Busch. The interior has been remodeled. A very modern and complete X-ray equipment has been installed in the hospital.

The Parker Memorial Hospital is owned and operated by the University primarily for the benefit of the University students. It is also open to the sick of Missouri for the treatment of acute and chronic curable diseases. Those who suffer from chronic incurable, or dangerous communicable diseases, are not admitted to the hospital.

Patients are admitted to the hospital at any hour of the day. Application for admission should be addressed to the superintendent of the hospital.

*Rates and Terms:* The following rates are for the maintenance of patients who are not students of the University, including bed, board, and general nursing, but not including medical or surgical service.

*General medical and surgical cases.* Single rooms, \$28 a week and upward. Wards, \$21 a week and upward.

*Obstetrical cases,* \$35 a week.

*Special nursing* may be arranged at the regular rates for registered nurses.

*Clinical patients,* \$14 a week, including medical and surgical attention when given by members of the staff.

*Extra fees* will be charged for medicines, special nursing, dressings and the use of the operating room or its equipment. Fees for maintenance are payable invariably in advance.

Physicians who hold consultation with or give treatment to patients not residents in the hospital, and require therefor the attendance of a nurse or the use of the equipment of the hospital, must pay a minimum fee of \$1 for such privilege.

*The Diagnostic Clinic:* When submission of specimens to the Public Health Laboratory seems insufficient, patients may be sent to the hospital of the University for examination and diagnosis. The combined attention of the members of the hospital staff will be given to such patients and a statement of clinical findings, including X-ray examinations, will be rendered to the home doctor. Further information concerning the diagnostic clinic may be had by addressing the Superintendent of Parker Memorial Hospital, University of Missouri.

## THE SCHOOL FOR NURSES

The school for nurses of the University of Missouri was organized in 1901. The school is conducted in connection with the Parker Memorial Hospital.

Pupil nurses receive their training in the hospital and laboratories of the University.

The course of instruction is thoro and familiarizes the pupils with the theory and practice of nursing. The course covers a period of three full years. The first three months of residence in the school are probationary; at the expiration of that time the pupil is regularly enrolled at a member of the school, provided she is found to be acceptable.

Recently the nurses have been established in a residence situated close to the hospital. The house has been rearranged so as to make it especially well adapted as a home for nurses.

The school is affiliated with the City Hospital Training School for Nurses of St. Louis. This association makes it possible for pupil nurses in this school to pursue such studies as are possible only in a large hospital. Each nurse will spend six months of her senior year in residence in the City Hospital Training School. Her period of study there will be counted as part of the required work of this school. The diploma of the School for Nurses is awarded by the University upon satisfactory completion of all the required subjects of the curriculum of the school.

*Requirements for Entrance to School for Nurses:* A high school education or its equivalent is required for entrance to the school for nurses. Men are not admitted. Candidates must be between 19 and 30 years old and submit an acceptable statement concerning general health, civil state, and other things. Blank forms for this statement will be furnished upon application.

A special announcement giving detailed information concerning the school for nurses will be sent in response to requests addressed to the Principal of School for Nurses, Parker Memorial Hospital, University of Missouri, Columbia, Missouri.

### PRELIMINARY COURSE FOR NURSES

This course of studies, given in the fall term, is intended primarily for the entering class of students in the regular school for nurses, but is open for such other students as can satisfy the requirements for entrance, whether they propose to complete their study of nursing in the University or not.

Provision is made especially for such student nurses as may be recommended for admission to the course by the superintendents of schools for nurses. With such students the purpose is to give them the advantages of the course and after its completion to have them return to the schools from which they came, for the further study of nursing.

Upon the satisfactory completion of the course, arrangement can be made for the admission to other first-class schools for nurses of such students as do not immediately enter the curriculum of the school for nurses at the University.

Graduate nurses who desire to review the fundamental subjects of the curriculum are admitted to the course and are allowed to do the work in part or in whole.

*Expenses:* No entrance, tuition, or laboratory fees will be charged for this course.

The cost for the necessary textbooks for the full term will be about \$10.

*Studies of the Preliminary Course:*

Anatomy, fundamental principles and practice of nursing, materia medica and weights and measures, bacteriology, preventive medicine, dietetics, voice training and reading, practical handcraft, physical training.

For further information concerning the preliminary course, address the Principal, School for Nurses, University of Missouri, Columbia, Missouri.

## THE PUBLIC HEALTH LABORATORY

The Public Health Laboratory is situated in the Medical Building and is conducted as a part of the Department of Bacteriology and Preventive Medicine.

While the work of this laboratory has been going on for a number of years, it has recently been made the official laboratory of the State Board of Health of Missouri, and in the future not only will carry on the work formerly done, but also will care for that which has up to the present time been done by the State Board of Health at Jefferson City. This arrangement will more than double the number of specimens sent in for examination as well as the requests for vaccines, etc., and will afford an abundance of material for study by medical students and others interested in the conduct of public health laboratories.

The advantages of such abundant material and of such study are obvious. Courses are offered in the Department of Bacteriology and Preventive Medicine to advanced students who wish to specialize in public health work. These courses are especially adapted to meet the needs of physicians who are preparing themselves for the duties of public health officers. The importance of this training and service is now universally recognized and is being more and more emphasized every year.

In the laboratory all the usual routine examinations are carried out. Public water supplies are examined for their potability. Private water supplies are examined when the request comes from a physician and there seems to be a good reason for it. In all cases specially prepared bottles are shipped in containers suitable for maintaining a low degree of temperature so that the specimens reach the laboratory in good condition for examination.

Blood is examined for the Widal reaction (typhoid fever) and for malarial parasites. Restricted service is maintained in the making of blood examinations for the detection of syphilis, the purpose being to co-operate in every way with Federal or State agencies in the examinations. Throat cultures are examined for diphtheria, streptococcus, etc.

Sputum is examined for the presence of the tubercle bacillus. When routine examinations of sputum are required, the laboratory director will inform correspondents of the method of the laboratory concerning sending of proper containers.

Pathological specimens of all kinds are examined and reports made on them after the tissues have been hardened, stained, and microscopically examined by the experts in the pathological laboratory of the University.

Pus is examined for gonococcus, and when the patient is available, examination will be made for the spirochaeta pallida.

The brains of animals suspected of rabies are examined for the presence of Negri bodies. In the case of positive findings, any person who has been bitten will be given the Pasteur anti-rabic treatment at the Parker Memorial Hospital. The vaccine used will be obtained from the U. S. Public Health Service, Washington, D. C., and will be administered free of charge to indigent persons of the state at this laboratory only. The treatment requires twenty-one days, and should be begun within fourteen days from the time the patient was bitten.

When the treatment is desired the laboratory should be notified by wire at least three days before the patient arrives in Columbia, thus allowing ample time to secure the individual treatment from the laboratory at Washington.

The facilities of the laboratory are open to doctors of the State without charge. The laboratory has the privilege of sending pathological material thru the mail. Proper containers for specimens will be sent to physicians thruout the State on request without charge, except that the cost of carriage back and forth must be paid in the case of heavy material such as containers for water samples.

The value of laboratory diagnosis in disease has been amply demonstrated and is of course well known to all physicians, who are urged to make full use of the facilities now offered in the University thru the Public Health Laboratory.

*Bureau of Information:* The School of Medicine of the University receives a large number of standard journals and reports. The Department of Bacteriology and Preventive Medicine will be glad to have inquiries from physicians on any medical matter, and the latest information available will be given, or references will be furnished where further information may be obtained. Inquiries not strictly medical will be

referred for answer to other departments of the University. The Department of Preventive Medicine will be glad to assist in preparing outlines for lectures on public health topics.

Correspondence of all kinds and telegrams as well as specimens, should be addressed to

PUBLIC HEALTH LABORATORY,  
UNIVERSITY OF MISSOURI  
COLUMBIA.

## THE UNIVERSITY OF MISSOURI

The fundamental aim of the University of Missouri is the development of the highest and most efficient type of citizen. For the purpose of attaining its aim, the University furnishes ample facilities for liberal education and for thoro professional training. The University is a part of the public educational system of the state.

The work of the University is now carried on in the following divisions:

|                             |  |
|-----------------------------|--|
| College of Arts and Science | School of Mines and Metallurgy               |
| College of Agriculture      | School of Business and Public Administration |
| School of Education         | Graduate School                              |
| School of Law               | Extension Division                           |
| School of Medicine          |  |
| School of Engineering       |  |
| School of Journalism        |  |

All of these divisions are at Columbia, with the exception of the School of Mines and Metallurgy, which is at Rolla. In addition, emphasis is given particular lines of work by the establishment of minor divisions, the chief of which are the Agricultural Experiment Station, the Engineering Experiment Station, and the Missouri State Military School.

The University of Missouri is at Columbia, half-way between St. Louis and Kansas City, near the center of the state. It is reached by the Wabash and by the Missouri, Kansas & Texas railways. Columbia is a progressive and prosperous town. It may be characterized as a town of schools, homes, and churches, with enough of industrialism to make it efficient, offering the conveniences of a larger city without the counter attractions. The student is a predominant factor in Columbia.

The University grounds cover more than 800 acres. The main divisions are in the west campus, the east campus, the athletic fields, and the University farm. The following University buildings are located at Columbia: Academic Hall; Library Building; Jay H. Neff Hall; separate buildings for chemistry, physics, biology, geology, engineering, in-

dustrial arts, law, business and public administration; two power houses; Medical Laboratory Building; Parker Memorial Hospital; Agriculture Building; Horticulture Building; Schweitzer Hall for agricultural chemistry; green houses; Live Stock Judging, Poultry, Dairy, Farm Machinery, and Veterinary Buildings; the agricultural college farm barns and buildings; Switzler Hall; Lathrop Hall, dormitory for men; Read Hall, dormitory for women; Rothwell Gymnasium; the houses for the President of the University and the Dean of the College of Agriculture; and High School and the Elementary School buildings, used for practice schools in the School of Education.

### FOR FURTHER INFORMATION

For further information in regard to the School of Medicine of the University, address

DEAN, FACULTY OF MEDICINE,  
UNIVERSITY OF MISSOURI,  
COLUMBIA, MISSOURI.

Full information regarding the University is given in the catalog, which will be sent on request without charge. For this or special bulletins of the College of Agriculture, School of Education, School of Law, School of Medicine, School of Engineering, School of Journalism, School of Business and Public Administration, Extension Division, and the Graduate School, write to

THE REGISTRAR,  
UNIVERSITY OF MISSOURI,  
COLUMBIA, MISSOURI.

LIST OF STUDENTS IN THE SCHOOL OF MEDICINE—  
SESSION 1919-20

|                           |                           |
|---------------------------|---------------------------|
| Alava, Petronio           | Kaminsky, Jacob           |
| Anderson, Frank Oscar     | Kaplan, Joseph            |
| Atwood, Harry David       | Kendig, Howard M.         |
| Backlar, Joseph           | Kibbe, John Halbert       |
| Barlow, Orpheus William   | Klinkerfuss, George Henry |
| Barnwell, Wesley James    | Koslosky, Isadore         |
| Bills, Marvin Lee         | Lapp, Harry Clemens       |
| Bilsky, Nathan            | Lehmann, Isador J.        |
| Black, Eugene Cone        | Lindsay, Samuel T.        |
| Bohrer, Eldon Claude      | Meredith, Guy Irving      |
| Bondurant, Charles P.     | Milbank, George Edward    |
| Bradford, William Leslie  | Morton, Paul Colhoun      |
| Brainard, Ada Elizabeth   | Muir, Hugh Poteet         |
| Bull, Ben May             | Norton, William Hudson    |
| Calderon, Isabel Lelia R. | Orris, John A.            |
| Chamberlain, Gilbert Lee  | Pittman, John Edward      |
| Clark, Oscar Dwight       | Post, Winfred Luscombe    |
| Cohen, Meyer              | Pursell, Nita Irene       |
| Davidman, Anna            | Powell, John Rodger       |
| Davis, Frank Harley       | Quinn, William Russell    |
| Dell, Louis E.            | Rabinowitz, Minnie        |
| Dysart, Ben Robnett       | Reed, Carl Henry          |
| Eads, Marion Fletcher     | Reisman, Henry Allen      |
| Eckelberry, Neil Elmer    | Rummell, Robert Jefferson |
| Evans, Jugh J.            | Sandzen, Sigurd Carl      |
| Facultad, Jose M.         | Sewell, Arthur B.         |
| Feist, George Van         | Schneck, Nathan           |
| Fellows, Ralph Manos      | Shrader, Eugene Lee       |
| Forsen, James Albert      | Spurling, Roy Glenn       |
| Gaebler, Oliver Henry     | Sultzman, Francis Eugene  |
| Gale, Joseph Wasson       | Thiehoff, Eldred V.       |
| Greene, Charles Wilson    | Weber, Solomon            |
| Hall, Margaret Lucy       | White, Harry Allen        |
| Haynes, Robert Clark      | Williams, Roy G.          |
| Hussey, Frank Larkin      |                           |



## FACULTY OF THE SCHOOL OF MEDICINE

- ALBERT ROSS HILL, A. B., Ph. D., LL. D.,  
President of the University.
- GUY LINCOLN NOYES, M. D.,  
Professor in the Department of Clinical Medicine and Surgery.  
Superintendent of Parker Memorial Hospital, Dean of the Faculty.
- ELIOT ROUND CLARK, A. B., M. D.,  
Professor of Anatomy.
- DUDLEY STEELE CONLEY, B. L., M. D.,  
Professor in the Department of Clinical Medicine and Surgery.
- DAVID HOUGH DOLLEY, A. B., A. M., M. D.,  
Professor of Pathology.
- CHARLES WILSON GREENE, A. B., A. M., Ph. D.,  
Professor of Physiology and Pharmacology.
- GEORGE LEFEVRE, A. B., Ph. D.,  
Professor of Zoology.
- MAZŮCK PORCHER RAVENEL, M. D.,  
Professor of Medical Bacteriology and Preventive Medicine, Director of Public Health Laboratory.
- DAN GISH STINE, A. B., M. D.,  
Professor in the Department of Clinical Medicine and Surgery.
- ADDISON GULICK, A. B., A. M., Ph. D.,  
Associate Professor of Physiology.
- FRANKLIN PARADISE JOHNSON, A. B., A. M., Ph. D.,  
Associate Professor of Anatomy.
- MAX MAPES ELLIS, A. B., A. M., Ph. D.,  
Assistant Professor of Physiology.
- RALPH MCBURNEY, B. S., M. S.,  
Assistant Professor of Medical Bacteriology.
- FRANCES VIRGINIA GUTHRIE, A. B., B. S., A. M.,  
Instructor in Pathology.
- JAMES EVANS STOWERS, A. B., M. D.,  
Instructor in Anatomy.
- GEORGE WASHINGTON TANNREUTHER, A. B., A. M., Ph. D.,  
Instructor in Zoology.
- FRANK OSCAR ANDERSON,  
Assistant in Physiology.
- CHARLES WALTER ARTHUR, Ph. B.,  
Assistant in Public Health Laboratory.

- WILLIAM LESLIE BRADFORD,  
Assistant in Preventive Medicine.
- RALPH MANOS FELLOWS,  
Assistant in Physiology.
- OLIVER HENRY GAEBLER,  
Assistant in Anatomy.
- PAUL COLHOUN MORTON, A. B.,  
Assistant in Physiology.
- HUGH POTEET MUIR,  
Assistant in Anatomy.
- MARY ELIZA MCDANIEL, A. B.,  
Assistant in Physiology.
- WINFRED LUSCOMBE POST,  
Assistant in Physiological Chemistry.
- CARL HENRY REED,  
Assistant in Physiological Chemistry.
- EUGENE LEE SETTLES, A. B.,  
Assistant in Anatomy.
- MANCE TAYLOR, R. N.,  
Principal of the School for Nurses.
- LOUISE HILLIGASS, R. N.,  
Instructor in the School for Nurses.

THE  
UNIVERSITY OF MISSOURI  
BULLETIN

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CHARLES E. KANE  
*University Publisher*

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