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Bulletin

University of Kentucky

Graduate School

1927-1928

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THE GRADUATE SCHOOL
WILLIAM D. FUNKHOUSER, A. M., Ph. D., Dean

INTRODUCTORY STATEMENT

Graduate work is offered in all colleges in the University. Approximately three hundred courses are listed in the catalogue, under the various departments, which are accepted for graduate credit.

The following advanced degrees are conferred by the University: Master of Arts, Master of Science, Master of Science in Agriculture, Master of Science in Home Economics, Civil Engineer, Mechanical Engineer, Electrical Engineer, Metallurgical Engineer, Mining Engineer.

The degree of Doctor of Philosophy is offered with major work in the following departments: Chemistry, Education, Economics, Mathematics, Physics and Psychology. Minor work may be carried in any department offering graduate courses.

ADMISSION TO GRADUATE STANDING

Graduates of institutions accredited by the University may be admitted to the Graduate School upon the presentation of a certificate of graduation and an official transcript of undergraduate courses taken. The status of the institution is to be ascertained from the Registrar of the University. Graduates from non-accredited institutions are encouraged to secure a bachelor's degree from an accredited institution. In particular cases they may be admitted to the Graduate School on the basis of doing additional work before being admitted to full graduate status.

It should be clearly understood that admission to the Graduate School does not necessarily admit a student to full graduate status. A student only attains full graduate status when he has fulfilled all the preliminary requirements of the degree which he seeks and of the department under whose direction he is pursuing graduate work.

Department prerequisites are determined jointly by the Dean of the Graduate School and the respective departments. In brief, it may be stated that such prerequisites usually consist of the equivalent of an undergraduate major. In some fields, the equivalent of an undergraduate minor is sufficient.

REGISTRATION

The first step in the procedure for admission to the Graduate School is the filing of a formal application with the Registrar on a form prepared for that purpose. Applicants from institutions other than this University are also required to file an official transcript

showing (a) all undergraduate work covered, (b) graduate wor
taken, if any, and (c) degrees received.

If the record submitted to the Registrar entitles him to admissio
he should confer with the Dean of the Graduate School and his majo
professor concerning preliminary requirements that he may have t
satisfy and as to the graduate courses that he should take.

Preliminary requirements may be added from time to time a
found necessary and all such requirements, together with graduat
courses, must be recorded in the Registrar's office and must be satis
fied by the student before his is eligible for the degree for which h
is registered.

All courses listed in this bulletin, and all courses which may ap
pear later in the regular University catalogue, which have number
above 100, may be counted as credit towards a graduate degree. A
grade of D in a course will not be given graduate credit.

FEES

Registration and laboratory fees are the same as for undergradu
ate students in the college in which the major work is done.

In addition, a fee of two dollars is required for defraying the ex
penses incidental to the binding of the thesis. This fee must be paid
to the Business Agent of the University before the degree is granted.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS AND
MASTER OF SCIENCE

Students having completed the equivalent of an A. B. or B. S.
degree from an accredited liberal arts college or a standard teachers'
college, may become candidates for the degree of master of arts or
master of science.

THE AMOUNT OF WORK required is twenty-four credits exclusive of
the thesis. The twenty-four credits may not include credits received
in a thesis course. All the work may be done in one field, but it
should preferably be done in a major subject and one or two minors.
At least twelve credits must be taken in major courses.

RESIDENCE. One Academic year (36 weeks) is required in resi-
dence. This may be fulfilled by any combination of regular semester
or summer school sessions which total the required number of weeks.
This does not mean that the work prescribed for each individual stu-
dent can always be completed in one year. In adequate preparation, or
assistance in departments very frequently makes a longer period nec-
essary. Part time work during a regular semester is evaluated on the
basis of the amount of work carried.

The transfer of acceptable graduate credits from other institutions or of other work done *in absentia* such as the writing of a thesis under the direction of the major professor, can not reduce the standard residence requirement.

THESIS. A thesis is required of all candidates for a master's degree. Two typewritten copies of the completed thesis must be presented not later than three weeks before the time set for the oral examination. One copy is presented to the Dean of the Graduate School to be bound and placed in the University Library and the other to the major professor to be retained by the department concerned.

EXAMINATIONS of regular class work are taken by all resident graduate students. A final *oral examination* is given the candidate not later than fifteen days before the close of the semester. The Dean appoints an examining committee of at least three members for the purpose, selecting its members from the major and minor professors under whom work was done. The Dean is *ex officio* a member of all such examining committees. The candidate is asked to defend his thesis and is examined on any subject matter related to his field.

MASTER OF SCIENCE IN AGRICULTURE OR IN HOME ECONOMICS

Students holding a bachelor's degree from a standard agricultural college may obtain a Master of Science in Agriculture or a Master of Science in Home Economics by completing a full year of residence, which is understood to be class work amounting to twenty-four credits, exclusive of the thesis. The work is prescribed by the major professor with the approval of the Dean. The procedure concerning oral examinations and the presentation of the thesis is the same for the M. A. and M. S. degrees.

REQUIREMENTS FOR THE DEGREES IN ENGINEERING. C. E., CIVIL ENGINEERING; E. E., ELECTRICAL ENGINEERING; M. E., MECHANICAL ENGINEERING; MET. E., METALLURGICAL ENGINEERING; E. M., MINING ENGINEERING.

Any of these advanced engineering degrees may be obtained by doing *one year's work in residence* in the College of Engineering at this University, provided the student holds a bachelor of science degree from an engineering college of recognized standing. The course of study should be arranged in consultation with the head of the department in which the student expects to take his major work and must have the approval of the Dean of the College of Engineering and the Dean of the Graduate School. The student must pass an examination and present an acceptable thesis.

These degrees may also be obtained for work done *in absentia* three or more years after receiving the degree of bachelor of science in engineering, providing this time has been spent in practical engineering work and an acceptable thesis is presented. At least one year's notice must be given the Dean of the Graduate School that graduate work is being done, and such work must have his approval and that of the major professor under whose supervision the thesis is prepared.

The fees for the degree obtained *in absentia* are $15.00 registration fee, $15.00 ten days before the degree is granted and $2.00 for binding the thesis.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

The degree of Doctor of Philosophy is conferred upon a candidate who, after completing not less than three years of graduate work devoted to the study of a special field of knowledge, passes the required examinations in the subjects, presents a satisfactory dissertation, and is deemed worthy of recognition as a scholar of high attainments in his chosen province.

The Doctor's degree is intended to represent not a specified amount of work covering a specified time, but the attainment, through long study, of independent and comprehensive scholarship in a special field. Such scholarship should be shown by a thorough acquaintance with present knowledge in his special field of learning and a marked capacity for research.

REQUIREMENTS FOR APPLICANT

ADMISSION

Admission to the Graduate School and acceptance of advanced credits from other institutions must first be approved by the Registrar.

In order to be accepted as an *applicant* for the degree of Doctor of Philosophy the student must present evidence that he has completed an undergraduate course and has received his baccalaureate degree from a college of recognized standing.

The Graduate Committee reserves the right to decide in each case of applicancy for a degree whether the prerequisite training has been satisfactory and, if any of the years of advanced work have been passes in another institution, whether they may be properly regarded as having been spent under suitable guidance and favorable conditions. Private study is not considered as equivalent to university work. In any case the student must pass the qualifying examinations at the University of Kentucky and spend the last year of the residence requirement at this institution.

CLASSIFICATION

A student wishing to become an *applicant* for the Doctor's degree must first regularly register in the Graduate School of the University of Kentucky and must then classify with the Dean of the Graduate School who will appoint a special committee for that student. This special committee, the chairman of which shall be his major professor, will consist of members of the departments in which the applicant elects to do his major and minor work and this committee will supervise his work throughout his period of study.

Not every *applicant* for the Doctor's degree is a *candidate*. A student is not a *candidate* for the degree until he has passed the qualifying examinations, satisfied the language requirements, and made formal application to be so enrolled.

COURSES OF STUDY

Every applicant for the degree must select one major and at least one and not more than two minor subjects.

The major subject should be one in which he intends to concentrate his efforts; the minor subjects should be closely allied to the major field or be subjects which will be of value in the major work and should be approved by the major department.

The applicant's principal work must be in the major subject. Although no absolute regulations are laid down in respect to the time to be devoted to the major and minor subjects, it may be stated in general that the major subject should represent two-thirds of the student's entire time.

Any regular graduate course may be assigned as part of the applicant's work by his special committee. Only courses numbered above 100 in the University catalogue are considered as of graduate status. The number and extent of such courses is determined by the special committee.

REQUIREMENTS FOR CANDIDATES

RESIDENCE

A minimum of three collegiate years of resident graduate work, of which at least the last year must be spent at the University of Kentucky, is required for the doctorate. The full time of each of these years must be spent in study. Part time students and those holding assistantships or engaging in other outside activities will of course be required to take a proportionately longer time.

While it is expected that a well prepared student of good ability may secure the degree upon the completion of three years of study, it should be understood that this time requirement is a minimum and is wholly secondary to the matter of scholarship. Neither time spent

in study, however long, nor the accumulation of facts, however great in amount, nor the completion of advanced courses, however numerous, can be substituted for independent thinking and original research.

Work done in other institutions of learning may be accepted toward the doctorate at the University of Kentucky but no work is credited which has not been done in a college or university of recognized standing or in a research laboratory.

LANGUAGE REQUIREMENTS

The applicant must give evidence of having a good reading knowledge and of being able to translate at sight at least two modern foreign languages. This proficiency is determined by examinations conducted by the respective language departments. Ordinarily French and German are expected to be offered, but other languages may be substituted on recommendation of the special committee if it is considered that such languages are of greater importance in the special field of work. The language requirements must be satisfied before the applicant can be admitted to the qualifying examination.

QUALIFYING EXAMINATION

Applicants for the degree of Doctor of Philosophy are required to pass a Qualifying Examination. This examination shall be taken during the second semester of the second year of residence. The examination shall be both oral and written and shall cover both major and minor subjects. It shall be prepared and given to the applicant by a committee of five to be appointed by the Dean of the Graduate School. The language requirements must have been met before the qualifying examination is taken. No applicant may proceed to his final examination until one year of work has been completed after he has passed the qualifying examination. If the applicant fails to pass the qualifying examination, no re-examination shall be allowed except upon the recommendation of the special committee and the approval of the Graduate Committee. If the applicant passes the qualifying examination he is then considered as a *candidate* for the degree and may make formal application for this rating.

DISSERTATION

Each candidate must present a dissertation covering his thesis work. This dissertation must give evidence of the candidate's ability to carry on independent investigation and must be satisfactory in style and composition. It must represent a definite contribution to the knowledge of his subject, must be the result of independent work, must include original research and must in some way add to or otherwise modify what was previously known on the subject. Two bound type-

written copies of the thesis and an abstract of not less than 1,200 nor more than 3,000 words must be formally presented to the Dean of the Graduate School at least four weeks before the final examination.

PRINTING OF DISSERTATION

One hundred printed copies of the disseration must be presented to the University within one year from the time when the degree is conferred. Not later than one week before the conferring of the degree the candidate must deposit with the Business Agent of the University the sum of $50.00, this amount to be returned if the printed copies are received within the time specified. The University does not obligate itself to publish the thesis but if in the judgment of the Graduate Committee the thesis or an abstract of same should be published, the University reserves the privilege of so doing.

or

The candidate may have the dissertation printed at his own expense in which case he must present one hundred copies to the University before the degree is granted. If the candidate has the dissertation printed at his own expense, he will be expected to use good substantial paper and sightly typography. A page four by six inches with outside margin of at least one inch is recommended. The dissertation must have a cover and title page and the latter, in addition to the title and the name of the author, must bear the following inscription:

"A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the University of Kentucky."

If the dissertation is published in a technical journal or other recognized educational publication, the reprints will be accepted if presented with special printed covers and proper title page.

APPLICATION

All candidates who desire to be admitted to the final examination must file an application, approved by the Dean of the Graduate School, with the Registrar of the University at least three weeks before the examination is held.

FINAL EXAMINATION

After the acceptance of the dissertation by the special committee and the Dean of the Graduate School, the candidate shall be given a final oral examination by a committee of five members which shall include the Head of the Major Department or his delegate presiding, one additional professor selected by the major department, one professor

selected by each of the minor departments and additional members (to make the total of five) selected by the Dean of the Graduate School. The President of the University and the Dean of the Graduate School are *ex officio* members of all examining committees.

The final examination shall not be held until at least one year after the student has been accepted as a *candidate* for the degree.

The completion of three years of residence work confers no right upon the student to be so examined.

RECOMMENDATION

After the final examination has been passed, the name of the candidate will be presented to the University Senate for recommendation to the Board of Trustees for the degree of Doctor of Philosophy in course.

FELLOWSHIPS AND SCHOLARSHIPS

For the encouragement of research and scholarship the following fellowships and scholarships have been established:

Ten University scholarships with a stipend of $200.00 each.

Five University fellowships with a stipend of $400.00 each.

One registrar's fellowship with a stipend of $500.00.

Scholars and fellows will be expected to devote their whole time to graduate work, and no teaching or other departmental work may be required of them. Students employed as assistants in departments should as a rule take two years to satisfy a year's requirement.

Fellowships and scholarships are open to those who already hold, or will receive at the close of the academic year, a bachelor's degree from any college or university of good standing, provided the student has shown some special aptitude for the line of work he desires to pursue.

The primary object of these appointments is to stimulate research and not to give pecuniary aid. No departmental duties of any kind will be required of fellows and scholars. Candidates for the awards must be graduates of standard colleges or universities and must show evidence of high scholarship and fitness for graduate study. No student should apply for the award who does not cherish a real and earnest desire to do research work. The appointments are made for one year only but may be renewed if it can be satisfactorily shown that the prosecution of research undertaken should continue.

Forms for making application may be secured from the Dean of the Graduate School, University of Kentucky, Lexington, Kentucky. All applications should be on file not later than the 15th of April.

GRADUATE STUDENTS NOT CANDIDATES FOR A DEGREE

Graduate students who are not candidates for an advanced degree are not required to designate major or minor subjects, but may elect their work with a view to the special purpose for which they are in attendance at the University.

Any course of study announced for advanced undergraduates and graduates is open for election by such students upon the same conditions that are imposed upon those who are candidates for degrees.

Should a graduate student who has not arranged for his work with a view to obtaining a degree, subsequently desire to become a candidate for a degree, the amount of credit he is to receive for work already done will be determined at the time he applies for admission to candidacy for the degree.

No work is given graduate credit unless the student was enrolled in the Graduate School at the time during which the work was taken.

THE GRADUATE CLUB

All graduate students are members of the Graduate Club, in which they are expected to take an active part. The club serves the purpose of developing an *esprit de corps* among graduate students and provides ways and means for securing prominent men for addresses on various subjects of interest.

COLLEGE OF ARTS AND SCIENCES
PAUL PRENTICE BOYD, M. A., Ph. D., Dean

ANATOMY AND PHYSIOLOGY

101a. HUMAN OSTEOLOGY. The study begins with the development of the skeleton. This is followed by the process of ossification and the histology of bones. Each bone is studied in detail, drawings are made from the bone. At intervals oral and written examinations are given. The notebook is carefully inspected and reasonbaly good drawings are required. The work may be amplified to most any extent and some comparative anatomy included. *Recitation one hour; laboratory two hours a week. First semester.* Professor Pryor.

101b. HUMAN OSTEOLOGY. A continuation of 101a. *Recitation one hour, laboratory two hours a week. Second semester.* Professor Pryor.

ANCIENT LANGUAGES AND LITERATURES
LATIN

107. TACITUS (Germania, Agricola, Dialogues). Special attention is given to the style of Tacitus, and to his treatment of biography. His treatise on Germany is the best one extant. The content of it will be carefully noted. *Three hours a week. First semester.* Professor Jones.

108. TERRENCE (Phormio); PLINY'S LETTERS (Selections). The student will get a general introduction to the dramatic and epistolary literature of the Romans. Talks will be given on the Roman theatre, the influence of Greek literature upon that of Rome, the home and political life of Pliny. *Three hours a week. Second semester.* Professor Jones.

109. LATIN LITERATURE (Selections). The authors read will probably be: Juvenal (Selected Satires); Martial (Selected Epigrams). These writers will be read for their literary value, and for the light they throw on the political and social life in Rome at the close of the first century. *Three hours a week. First semester.* Professor Jones.

110. LATIN LITERATURE (Selections). The authors read will probably be: Suetonius (Claudius and Nero); Seneca (Selections). The private life of the Caesars is discussed in detail. The principles of the Stoic philosophy are explained. *Three hours a week. Second semester.* Professor Jones.

114a. LATIN COMPOSITION. The course will begin with easy passages in connected discourse and will proceed to more difficult selections. *One hour a week. First semester.* Professor Jones.

114b. LATIN COMPOSITION. A continuation of 114a. *One hour a week. Second semester.* Professor Jones.

151a. COURSE IN INDIVIDUAL WORK. The work assigned will depend upon the needs of the student. *Three hours a week. First semester.* Professor Jones.

151b. COURSE IN INDIVIDUAL WORK. A continuation of 151a. *Three hours a week. Second semester.* Professor Jones.

201a. LATIN PASTORAL POETRY. This course is based mainly on Virgil's Ecologues and Georgics. The development of the author's talent will be noted and his models traced. In addition one or two dramas will be read, or selections from Lucretius. *Three hours a week. First semester.* Professor Jones.

201b. LATIN ELEGIAC POETRY. Selections from Catulius, Tilbullus, Propertius and Ovid will be read. The change in the subject matter of the Elegy will be noted. Scanning. Mythological references studied. *Three hours a week. Second semester.* Professor Jones.

GREEK

152a. ANABASIS. One book of the Anabasis will be read, and easy selections from other writers. Exercises in construction and composition. *Three hours a week. Second semester.* Professor Jones.

152b. ANABASIS. A continuation of 152a. Selections from the remaining books of the Anabasis and from other writers of equal difficulty will be read. *Three hours a week. First semester.* Professor Jones.

153. HOMER. The Iliad, Books 1-6. The Homeric Question, Life in the Homeric Age, Mycenean Antiquities, recent discoveries, will receive due attention. Scanning. *Three hours a week. Second semester.* Professor Jones.

154. PLATO. The Apology and Crito, selections from Phaedo. The relation of Plato to Socrates, Socrates as a moral teacher, his methods of investigation, will be discussed. *Three hours a week. First semester.* Professor Jones.

155. HERODOTUS. Books 6-7. This course will include a rapid survey of Greek History from the Ionic Revolt to the end of the Persian Wars. *Three hours a week. Second semester.* Professor Jones.

ART

108a. ART STRUCTURE. This course deals with problems of designing for tapestry, stained glass, mosaic, and other advanced problems. The problems will be considered from the historical point of view. *Four hours a week. Two credits.* Professor Sax.

108b. ART STRUCTURE. A continuation of 108a. Full sized cartoons will be completed in color, for an advanced composition in some

of these or similar mediums. *Four hours a week. Two credits.* Professor Sax.

109a. DRAWING AND PAINTING. This course includes portrait in oils from life, and in the spring and fall, Landscape Painting from nature. *Lectures and recitations two hours, studio six hours. Four credits.* Professor Sax.

109b. DRAWING AND PAINTING. A continuation of 109a. *Lectures and recitations two hours, studio six hours. Four credits.* Professor Sax.

112a. ART STRUCTURE. This is an advanced course in Pictorial Composition. Illustration, mural painting, and other forms of composition will be studied. *Four hours a week. Two credits.* Professor Sax.

112b. ART STRUCTURE. A continuation of 112a. One major problem will be carried out in this course. *Four hours a week. Two credits.* Professor Sax.

114a. STAGE CRAFT. This course deals with the problem of producing in the modern theatre, considers such problems as lighting, costume, painting and constructing scenery, devices and mechanism for changing and setting up scenery, methods of cost of construction, and the use and application of material. The problems of various types of drama are taken up and applied, and models and working drawings for various types of scenery are made. Opportunity will be given to carry out work on a large scale to those who show the requisite fitness. *Lectures and recitations one hour a week, studio four hours. Three credits.* Professor Sax.

114b. STAGE CRAFT. A continuation of 114a. *Lectures and recitations one hour a week, studio four hours. Three credits.* Professor Sax.

123a. SPECIAL PROBLEMS. This course deals with special problems in original investigation and requires a thesis. Such problems as the sources of design found in the mountain coverlets; the influence of the Shakers on the architecture of the Blue Grass; early Kentucky glass manufacturers, etc., are considered. *Four hours a week. Two credits.* Professor Sax.

123b. SPECIAL PROBLEMS. A continuation of 123a. *Four hours a week. Two credits.* Professor Sax.

128a. ART PROBLEMS FOR MAJOR SCIENCE STUDENTS. This course is designed to give facility in the technical requirements for scientific illustration, and presupposes a thorough grounding in prospective projection of shades and shadows, and of the principles of color. *Two credits.* Professor Sax.

128b. ART PROBLEMS FOR MAJOR SCIENCE STUDENTS. A continuation of 128a. *Two credits.* Professor Sax.

BACTERIOLOGY

102. GENERAL BACTERIOLOGY. Morphology, classification physiology, observation and cultivation of bacteria and related microorganisms; their relation to certain fermentations and to the preservation of food; their influence on the plant food in the soil. Microorganisms in milk, water, air and soil. Relation of microorganisms to disease; sources and modes of infection; use of germicidal agents; theories of immunity. Prerequisite, Chemistry 16. *Lectures and recitations two hours, laboratory four hours a week. First semester. Repeated second semester.* Professor Sherago, Dr. Weaver and assistants.

103. PATHOGENIC BACTERIOLOGY. Cultivation, morphology, means of identification, powers of resistance, pathogenesis, distribution, channels of infection and means of dissemination of pathogenic microorganisms, especially those related to specific infectious diseases of man and animals. Study of preparation, standardization, and uses of vaccines, toxins, antitoxins and other biological products related to the diagnosis, prevention and treatment of specific infectious diseases. Application of the various phenomena of immunity in the diagnosis of infectious diseases; agglutination, precipitation and complement fixation reactions. Anaphylaxis. Prerequisite, course 102 or 2b. *Lectures and recitations two hours, laboratory four hours a week. First semester.* Professor Sherago and assistants.

104. APPLIED BACTERIOLOGY. A course in bacteriological analysis to supplement courses 2 and 102. Prerequisite, course 2b or 102. *Laboratory four hours a week. Second semester.* Dr. Weaver and assistants.

106. BACTERIOLOGY OF FOODS. Microbiology of milk and milk products, eggs, tomato products, meat and meat products; food preservation; bacterial food poisoning. Prerequisite, course 2b or 102. *Lectures and recitations two hours, laboratory four hours a week. First semester.* Dr. Weaver.

107. BACTERIOLOGY OF WATER AND SEWAGE. The microflora of water; importance of the colon-typhoid group of bacteria in water; methods of water analysis and interpretation of results; special media used in isolating and identifying the colon-typhoid group of bacteria; methods of water purification; microflora of sewage; methods of sewage analysis; methods of sewage disposal; bacteriological study of swimming pools; methods of analysis; effect of treatment on bacteriological content; regulations concerning swimming pools. Water purification plants, sewage disposal plants and swimming pools will be visited and

studied. Prerequisite, course 2b or 102. *Lectures and recitations two hours, laboratory four hours a week. First semester.* Dr. Weaver.

110a. LABORATORY DIAGNOSIS. Laboratory methods in the diagnosis of disease. Designed for students specializing in Public Health Bacteriology. Prerequisite, course 103. *Laboratory six hours a week. First semester.* Professor Scherago.

110b. LABORATORY DIAGNOSIS. A continuation of 110a. *Laboratory six hours a week. Second semester.* Professor Scherago.

111. GENERAL PATHOLOGY. A general course in Pathology, consisting of lectures, demonstrations, recitations and laboratory work. The laboratory work comprises examination of gross specimens and microscopic examination of morbid tissue. Emphasis will be placed on pathological technique and on the study of pathological histology. Prerequisites, Physiology 1, Zoology 1 or 5 and Histology 101b. *Lectures and recitations two hours, laboratory four hours a week. Second semester.* Professor Scherago.

115. INDIVIDUAL WORK. Students will be assigned special problems in laboratory work and reference reading. Prerequisite, any course above 102. *Laboratory six hours a week. Three credits.* Professor Scherago and Dr. Weaver.

150a. SEMINAR. *One two-hour discussion a week. One credit. First semester.* Professor Scherago and Dr. Weaver.

150b. SEMINAR. *One two-hour discussion a week. One credit. Second semester.* Professor Scherago and Dr. Weaver.

201a. RESEARCH IN BACTERIOLOGY. *Laboratory ten hours a week. Five credits. First semester.* Professor Scherago and Dr. Weaver.

201b. RESEARCH IN BACTERIOLOGY. A continuation of course 201a. *Laboratory ten hours a week. Five credits. Second semester.* Professor Scherago and Dr. Weaver.

BOTANY

106a. SPECIAL PROBLEM. The qualified student will be assigned some problems for solution. *Three credits.* Professors McFarland and McInteer.

106b. SPECIAL PROBLEM. A continuation of 106a. *Three credits.* Professors McFarland and McInteer.

111. CLASSIFICATION OF PARASITIC FUNGI. Entire time will be taken up in studying the fungi that cause diseases of plants, both cultivated and wild. *Two hours a week. One credit.* Professor McFarland.

125a. MORPHOLOGY OF FUNGI. A detailed study of the different types of fungi from the standpoint of morphology, cytology and phy-

siology. *Two lectures, four hours laboratory a week. Four credits.* Professor McFarland.

125b. MORPHOLOGY OF FUNGI. A continuation of 125a. *Two lectures, four hours laboratory a week. Four credits.*

126a. MYCOLOGY. A course which employs the entire time of the student in identification of unknowns. *Four credits.* Professor McFarland.

126b. MYCOLOGY. A continuation of 126a. *Four credits.* Professor McFarland.

150a. ADVANCED SYSTEMATIC BOTANY. A continuation of course 105, but more work and more difficult plants are studied. *Ten hours laboratory a week. Five credits.* Professors McFarland and McInteer.

150b. ADVANCED SYSTEMATIC BOTANY. A continuation of 150a. *Ten hours laboratory a week. Five credits.* Professors McFarland and McInteer.

206a. RESEARCH IN MORPHOLOGY. *Ten hours a week. Five credits.* Professors McFarland and McInteer.

206b. RESEARCH IN MORPHOLOGY. A continuation of 206a. *Ten hours a week. Five credits.* Professors McFarland and McInteer.

207a. RESEARCH IN MYCOLOGY. *Ten hours a week. Five credits.* Professor McFarland.

207b. RESEARCH IN MYCOLOGY. A continuation of 207a. *Ten hours a week. Five credits.* Professor McFarland.

210a. RESEARCH IN PLANT PHYSIOLOGY. *Ten hours a week. Five credits.* Professor McInteer.

210b. RESEARCH IN PLANT PHYSIOLOGY. A continuation of 210a. *Ten hours a week. Five credits.* Professor McInteer.

213a. RESEARCH IN SYSTEMATIC BOTANY. *Ten hours a week. Five credits.* Professors McFarland and McInteer.

213b. RESEARCH IN SYSTEMATIC BOTANY. A continuation of 213a. *Ten hours a week. Five credits.* Professors McFarland and McInteer.

CHEMISTRY

104. SYNTHETIC INORGANIC CHEMISTRY. An intermediate course planned to aid the student in gaining a more adequate knowledge of practical inorganic chemistry. Elective. *Laboratory ten hours a week. Second semester.* Professor Maxson.

105. INTERMEDIATE COURSE IN PHYSICAL CHEMISTRY. Prerequisite, Chemistry 115b and Calculus. More advanced theories and laws and a more detailed study of the theories, laws, etc., which are not thoroughly covered by Chemistry 115a and 115b. *Lectures two hours a week, laboratory six hours a week. Either semester.* Assistant Professor Bedford.

106. ADVANCED ORGANIC CHEMISTRY. Prerequisites, Chemistry 113b. A laboratory course which includes the preparation of compounds of theoretical, biological and industrial importance together with references to the original literature, conferences and reports. *Laboratory ten hours a week.* Assistant Professor Barkenbus.

107. SELECTED PROBLEMS IN QUANTITATIVE ANALYSIS. Prerequisite, Chemistry 114. *Laboratory ten hours a week. Second semester.* Professor Tuttle.

108. COLLOID CHEMISTRY. A course involving the preparation of colloids and study of the physical and chemical properties of matter in the colloidal state. *Laboratory work with conferences and collateral reading ten hours a week. Either semester.* Professor Maxson.

109. QUANTITATIVE ANALYSIS. A lecture and laboratory course devoted to the analysis of ores, alloys, etc. Prerequisite, Chemistry 8. *Laboratory ten hours a week. First semester.* Professor Tuttle.

112. ADVANCED AGRICULTURAL ANALYSIS. A laboratory course having for its object the complete analysis of fertilizers, feeds, soils and agricultural products. Prerequisite, Chemistry 8. *Laboratory eight hours a week. Second semester.* Professor Tuttle.

113a. ORGANIC CHEMISTRY. Prerequisite, Chemistry 1b. Recitations and lectures in the aliphatic series, together with laboratory work on the preparation and study of such compounds as will emphasize basic principles and important synthetic methods. *Three recitations and four laboratory hours a week. First semester.* Assistant Professor Barkenbus.

113b. ORGANIC CHEMISTRY. A continuation of Chemistry 113a. Prerequisite, Chemistry 113a. Cyclic series. *Three recitation and six laboratory hours a week. Second semester.* Assistant Professor Barkenbus.

114. ADVANCED QUANTITATIVE ANALYSIS. The analysis of iron and steel, slags and rocks. *Laboratory ten hours a week. First semester.* Professor Tuttle.

115a. INTRODUCTORY COURSE IN PHYSICAL CHEMISTRY based upon the fundamental laws of chemistry. Determination of atomic and molecular weights; gaseous, liquid and solid states of matter, solution, ideal and ionized; Thermochemistry. *Lectures and recitations two hours a week, laboratory two hours a week. First semester.* Assistant Professor Bedford.

115b. INTRODUCTORY COURSE IN PHYSICAL CHEMISTRY. A continuation of 115a. Prerequisite, Chemistry 115a. Homogeneous and Heterogenous Equilibria; Chemical Kinetics; Structure of Matter; Periodic Law; Radio-chemistry; Colloids; Electro-chemistry. *Lectures and rec-*

itations two hours a week, laboratory two hours a week. Second se-mester. Assistant Professor Bedford.

118. WATER ANALYSIS. In this course waters are examined to de-termine their fitness for domestic and other purposes. *Laboratory four hours a week. First semester.* Professor Tuttle.

119a. INDUSTRIAL CHEMISTRY. A survey course on modern indus-trial chemistry using text as a basis for discussion. *Two hours a week. First semester.* Professor Maxson.

119b. INDUSTRIAL CHEMISTRY. A continuation of 119a. *Two hours a week. Second semester.* Professor Maxson.

122a. JOURNAL CLUB. Conferences and reports on chemical litera-ture and training in the use of literature for research purposes. *One hour a week. First semester.* Professor Maxson.

122b. JOURNAL CLUB. A continuation of 122a. *One hour a week. Second semester.* Professor Maxson.

129. FOOD CHEMISTRY AND ANALYSIS. The composition, adultera-tion and preservation of food. Laboratory practice on the analysis of milk, sugar, baking powder, vinegar, alcoholic beverages, fats, etc. Prerequisite, Chemistry 7a or 113a and 8. *Lectures and discussions one hour a week with assigned reading, laboratory eight hours a week. First semester.* Professor Tuttle.

130a. PHYSIOLOGICAL CHEMISTRY. The chemistry and metabolism of carbohydrates, proteins and fats. A study of the tissues, the secre-tions and excretions. The nature and action of enzymes. Nutrition, food values and requirements. The effects of a diet of selected food principles on the quantity of metabolic products. Prerequisite, Chem-istry 7 or 113a. *Two lectures, six laboratory hours a week. First se-mester.* Assistant Professor Barkenbus, Professor Tuttle.

130b. PHYSIOLOGICAL CHEMISTRY. A continuation of 130a. *Two lectures, six hours laboratory a week. Second semester.* Assistant Pro-fessor Barkenbus, Professor Tuttle.

150. ADVANCED INORGANIC CHEMISTRY. Prerequisite, Chemistry 115b. A survey course covering the less common side of inorganic chemistry including laboratory work in synthesis. *Two recitations and four laboratory hours a week. Second semester.* Professor Maxson.

201. SYNTHETIC INORGANIC CHEMISTRY. Practice and research in inorganic synthesis, with use of original literature. *Labroatory ten hours a week. Either semester.* Professor Maxson.

202. QUANTITATIVE ANALYSIS. A critncal study of known procedures and research in analytical chemistry. *Laboratory ten hours a week. Either semester.* Professor Tuttle.

204a. ORGANIC CHEMISTRY. Prerequisite, Chemistry 106. A lab-oratory course with conferences on special problems in organic chem-

istry. *Ten hours laboratory a week. Either semester.* Assistant Professor Barkenbus.

204b. ORGANIC CHEMISTRY. Prerequisite, Chemistry 204a. *Ten laboratory hours a week. Either semester.* Assistant Professor Barkenbus.

205a. ADVANCED PHYSICAL CHEMISTRY. Prerequisites, Chemistry 115b and Calculus. Lectures on selected topics. *Two hours a week. Either semester.* Assistant Professor Bedford.

205b. ADVANCED PHYSICAL CHEMISTRY. Continuation of 205a. Lectures on selected topics. *Two hours a week. Either semester.* Assistant Professor Bedford.

206a. ADVANCED PHYSICAL CHEMISTRY. Laboratory course on selected topics in Advanced Physical or Electro-chemistry. To be preceded or accompanied by Chemistry 205a. *Six or more hours a week. Either semester.* Assistant Professor Bedford.

206b. ADVANCED PHYSICAL CHEMISTRY. Continuation of 206a. To be preceded or accompanied by Chemistry 205b. *Six or more hours a week. Either semester.* Assistant Professor Bedford.

ENGLISH LANGUAGE AND LITERATURE

104. MILTON. A study of Milton's poetry and most important prose works. The relation of Milton to his contemporaries. Graduate students will be assigned special topics for investigation. *Two hours a week. First semester.* Professor Dantzler.

105. BROWNING. An intensive study of the art and teaching of Browning. Graduate students will be assigned special topics for investigation. *Two hours a week. Second semester.* Professor Dantzler.

106. THE ROMANTIC MOVEMENT IN ENGLISH POETRY. A rapid survey of the characteristics of the classical period, and a more careful study of growing signs of Romanticism in the early part of the 18th century. The French Revolution and its influence on the chief poets of the Romantic Movement. Special emphasis on Wordsworth, Byron, Shelley, Keats and other prominent poets of the first quarter of the 19th century. *Three hours a week.* Associate Professor Brady.

107. VICTORIAN POETRY. Extensive study of the ideas of the chief poets of the Victorian era, with special emphasis on the works of Tennyson, Browning, Arnold, Swinburne and Rossetti. *Three hours a week. Second semester.* Associate Professor Brady.

111. THE ENGLISH NOVEL. Aims to present the development of the novel from Richardson to the most modern writers, including Joyce, Huxley, and Firbank, and to form and guide taste in reading fiction.

Reading list of fourteen novels. *Three hours a week. Second semester.* Associate Professor Knight.

114. AMERICAN LITERATURE. A survey of our national literature from colonial times to the present. Emphasis upon a few periods, including the contemporary renaissance. *Two hours a week. Second semester.* Associate Professor Knight.

116. THE CONTEMPORARY DRAMA. Development and tendencies in Continental, British and American Dramatic Literature, 1850 to 1918. Selected readings open to juniors and seniors. Offered 1927-28. *Three hours a week.* Professor Farquhar.

117. LITERARY COMPOSITION. Meant to stimulate original writing in any form the student prefers. The class becomes a laboratory for readings, criticisms and discussions. Those taking it should be interested, at least in a speculative way, in becoming writers. *Two hours a week. Second semester.* Associate Professor Knight.

123a. LITERATURE OF THE BIBLE. A literary study of the Bible by Books. It develops an appreciation of literature generally because of the demand that literature identify itself with the highest thought and feeling. *Two hours a week. First semester.* Professor Farquhar.

123b. LITERATURE OF THE BIBLE. This is a continuation of 123a. *Two hours a week. Second semester.* Professor Farquhar.

130a. COMPARATIVE LITERATURE. Extensive reading of literary masterpieces through the ages from Homer to the present day. A study of the great traditions of civilization as reflected in the literary monuments. Lectures, assigned readings and class discussions. Intended for advanced undergraduates or graduate students. The reading is assigned entirely in translations, but a reading knowledge of at least one foreign language is highly desirable. *Three hours a week. First semester.* Associate Professor Brady.

130b. COMPARATIVE LITERATURE. A continuation of English 130a. *Three hours a week. Second semester.* Associate Professor Brady.

134. DEVELOPMENT OF THE ESSAY FROM BACON TO THE PRESENT DAY. Class discussion of assigned readings from representative essayists. Study of various types, such as the familiar, critical, historical and philosophical essay, with some practice by the student in writing original essays. *Three hours a week. First semester.* Associate Professor Brady.

135. PRE-VICTORIAN PROSE. A careful study of some of the prose monuments of English Literature with special emphasis on the groups of writers surrounding the period of the French Revolution, with consideration of the philosophical and political writing of the age. *Three hours a week. Second semester.* Associate Professor Brady.

136. VICTORIAN PROSE. A careful study of Carlysle, Ruskin, Newman, Spencer, Arnold, Huxley, and related writers of the period in the field of prose. Special emphasis is placed upon Carlysle's Sartor Resartus and Newman's Idea of a University and *Apologia Pro Vita Mea.* Assigned parallel readings, class discussion and lecture. *Three hours a week. First semester.* Associate Professor Brady.

201a. LITERARY CRITICISM. This course is mainly an application of the philosophic and historical elements of literary criticism to some period of literature or to the works of some author in a period. It is criticism that essays the unity of all literature, its everlasting growth and the importance of inductive observation of literary phenomena. Prerequisite beginning in 1928, English 108a, 108b. *Three hours a week. First semester.* Professor Farquhar.

201b. LITERARY CRITICISM. A continuation of 201a. Special problems assigned to students. *Three hours a week. Second semester.* Professor Farquhar.

202a. STUDIES IN CONTEMPORARY DRAMA. This course is an application of the philosophy and history of drama to the modern dramas as a whole and to the work of some particular dramatists. It includes a particular study of the work of Ibsen as prerequisite to any other study, prerequisite beginning in 1928, English 116. *Three hours a week. First semester.* Professor Farquhar.

202b. STUDIES IN CONTEMPORARY DRAMA. A continuation of 202a. Special problems assigned to students. *Three hours a week. Second semester.* Professor Farquhar.

204a. BEOWULF. A literary and linguistic study of Beowulf. Lecture and recitation. One year of Old English and a reading knowledge of German are prerequisite. *Two hours a week. First semester.* Professor Dantzler.

204b. BEOWULF. A continuation of 204a. *Two hours a wek. Second semester.* Professor Dantzler.

205. CHAUCER. Chaucer's contribution to English literature. The greater part of his poetry will be read. Lecture and recitation. Each member of the class will prepare two papers. *Two hours a week. First semester.* Professor Dantzler.

207. SPENCER. A study of Spencer and his poetry. Lecture and recitation. A problem will be assigned to each member of the class for study. *Two hours a week. Second semester.* Professor Dantzler.

GEOLOGY

101a. PALEONTOLOGY. A study of the invertebrate fossils dealing with both their systematic and stratigraphic relationships. *Three hours a week. First semester.* Professor McFarlan.

101b. PALEONTOLOGY. A continuation of 101a. *Three hours a week. Second semester.* Professor McFarlan.

104a. ADVANCED FIELD GEOLOGY. Training in field methods applied to problems in structural, areal and stratigraphic geology. *Two credits First semester.* Professor McFarlan.

104b. ADVANCED FIELD GEOLOGY. A continuation of 104a. *Two credits. Second semester.* Professor McFarlan.

105a. INDEPENDENT WORK IN GEOLOGY. Individual work on assigned problems. *Three credits. First semester.*

105b. INDEPENDENT WORK IN GEOLOGY. A continuation of 105a. *Three credits. Second semester.*

106a. ECONOMIC GEOLOGY. An advanced study of representative deposits of both metallic and nonmetallic minerals and rocks of commercial value. Emphasis is placed on the genesis of these deposits. *Three credits. First semester.* Assistant Professor Robinson.

106b. ECONOMIC GEOLOGY. A continuation of 106a. *Three credits. Second semester.* Assistant Professor Robinson.

107a. PETROLOGY. Optical Mineralogy. *First semester. Three credits.* Assistant Professor Robinson.

107b. PETROLOGY. Principally a study of igneous rocks, their identification, classification and origin. *Second semester.* Assistant Professor Robinson.

108. STRUCTURAL GEOLOGY. A study of the principles and theories of earth diastrophism and rock deformation. *One semester.* Assistant Professor Robinson.

109a. MINERALOGY. A study of crystallography, the more important physical properties of minerals and blowpipe analysis. *Two credits. First semester.* Assistant Professor Robinson.

109b. MINERALOGY. Determinative mineralogy, mineral genesis and geologic occurrence. *Two credits. Second semester.* Assistant Professor Robinson.

110. STRATIGRAPHIC PALEONTOLOGY. A study of geologic faunas and the principles of correlation and stratigraphic geology. *One semester. Three credits.* Professor McFarlan.

111. PRINCIPLES OF SEDIMENTATION. The interpretation of the history of sedimentary rocks in the light of present day sedimentary processes. *One semester. Three credits.* Mr. Murphy.

116. OIL GEOLOGY. A study of oil and gas accumulation and exploitation with emphasis on the position and usefulness of the geologist in this field. *Two credits. Second semester.* Assistant Professor Robinson.

202a. RESEARCH IN GEOLOGY. *Five credits. First semester.*

202b. RESEARCH IN GEOLOGY. A continuation of 202a. *Five credits. Second semester.*

GERMAN

GERMAN 101a. The Drama. Readings from Schiller, Goethe and Lessing. Supplementary reading from the same authors and other dramatists of the period that is known as the "Second Golden Age of German Literature" (1748-1832), together with lectures on the literature of this period. *Three hours a week. First semester.* Professor Melcher.

GERMAN 101b. The Drama. Continuation of 101a. *Three hours a week. Second semester.* Professor Melcher.

GERMAN 102a. Novel and Drama. Readings from modern dramatists and novelists (from 1871 to the present). Also, more extensive supplementary reading, together with lectures on the principal writers of the period and their works. *Three hours a week. First semester.* Professor Melcher.

GERMAN 102b. Novel and Drama. Continuation of 102a. *Three hours a week. Second semester.* Professor Melcher.

HISTORY

114. THE RENAISSANCE. A study of the Italian Renaissance from 1300 to 1500. The states and cities of Italy and their scholars; general movements, political and other; rise of the modern spirit along the several lines of art and science, education, philosophy, commerce and exploration. Text, lectures, reports. *Three hours a week. First semester.* Professor Tuthill.

119a. THE FRENCH REVOLUTION AND NAPOLEON. A study of the period 1789-1815 in Europe, treating of the appearance and manifestation of the spirit of revolt. Conditions in France and adjoining nations, the evolution of France from 1778 to 1795 and subsequent changes under Napoleon. Open to juniors, seniors and graduate students, with supplementary reading for the latter. *Three hours a week. Given in alternate years.* Professor Tuthill.

119b. THE NINETEENTH CENTURY. Starting with the fall of Napoleon. This course treats the successive political changes in 1823, 1830, 1848 and 1871, together with the outstanding commercial, cultural, and scientific features of European life after 1815: the expansion of Europe in Africa and Asia, and the reactions upon the great states of the world. *Three hours a week. Second semester.* Professor Tuthill.

120. THE TWENTIETH CENTURY. A study of recent and contemporary movements, chiefly in Europe. The rise and conflict of the chief colonial empires; European interference and control in Asia and

Africa; forces and elements leading up to the great war; general features of the past twenty-five years, including socialism, public education, inventions and discoveries. Reports on current literature and assigned reading on a liberal scale. *Three hours a week. Second semester.* Professor Tuthill.

125a. HISTORY OF THE SOUTH. The main features of southern life and institutions in the colonial and national periods; geographical background, plantation areas and slavery before the revolution; colonization of the frontiers; party history, expansion and nullification to 1833; expansion west and southwest; the cotton kingdom; political and constitutional history, 1832-1861. *Three credits.* Assistant Professor Stephenson.

125b. HISTORY OF THE SOUTH. A continuation of 125a, examining in the same way the problems of reconstruction and the new south. *Three credits.* Assistant Professor Stephenson.

130a. HISTORY OF THE WEST. Beginning in 1748 the history of the west will be carried down to 1840. Political history will be stressed and a constant attempt made to show the influence of the westward movement on national affairs. Prerequisite, History 5a or equivalent. *Three credits.*

140. INDIVIDUAL WORK. This course is designed for exceptional students majoring in the Department of History and Political Science. The field work is determined by the qualifications and the interest of the student. The work is entirely individual, no lectures being given. The instruction in the course is done in individual weekly conferences with the professor to whom the student is assigned. Open to students at the discretion of the head of the department and the professors in charge. *Two credits.*

POLITICAL SCIENCE

102a. CONTEMPORARY PROBLEMS IN POLITICAL SCIENCE. This course is designated primarily for mature undergraduate students who are especially capable in political science as is shown by their records and who wish to pursue special problems in government. It is open to graduate students who are majoring in the field of political science. Permission of the head of the department is necessary before any student may register in this course. *Two hours a week. First semester.* Professor Jones.

102b. CONTEMPORARY PROBLEMS IN POLITICAL SCIENCE. A continuation of 102a with conditions of entrance the same as 102a. *Two hours a week. Second semester.* Professor Jones.

150. INTERNATIONAL LAW. A survey of the principles of international law. *Two hours a week.* President McVey.

152. MUNICIPAL GOVERNMENT. This course gives a brief sketch of the rise of city government. A study of the older forms of mayor and council as well as the commission and manager forms. Considerable attention will be given to city administration.

155a. COMPARATIVE GOVERNMENT. A general survey of the government of England, France, Italy, Switzerland, Canada, Australia, Germany, Austria, Poland, Czechoslovakia, Jugoslavia, Russia, Japan, with some attention to the smaller republics of Europe. *First semester. Three hours a week.* Professor Jones.

155b. COMPARATIVE GOVERNMENT. The continuation of Government 155a. *Three hours a week. Second semester.* Professor Jones.

156. COLONIAL GOVERNMENT. A study of the government of the colonies, protectorates, mandates, of the various nations of the world today. Colonies in Asia, Africa, South America and the islands of the Pacific will be studied.

157. PUBLIC UTILITIES. A study of the nature of public utilities and their relation to the government emphasizing governmental control. The chief emphasis of this course is placed upon municipal and other local utilities. *Three hours a week. Second semester.* Doctor Vandenbosch.

160. FOREIGN SERVICE. This course deals with the organization and work of the state department and the diplomatic and consular service and its various ramifications.

161. INTERNATIONAL RELATIONS. Deals with the agencies which are operative in drawing the nations of the world into closer association. The work of the International bureaus and associations of agriculture, economics and banking, international boundary commissions, river commissions and transportation commissions, together with such agencies as the League of Nations, the World Court and the Hague Tribunal.

165a. WORLD POLITICS. A study of political alignments of the nations of the world during the past fifty years. *Three hours per week. First semester.* Assistant Professor Blanding.

165b. WORLD POLITICS. A continuation of 165a. *Three hours a week. Second semester.* Assistant Professor Blanding.

170. POLITICAL PARTIES. A comprehensive study of the organization, functions, and methods of operation of political parties in government with a special emphasis upon the operations of political parties in the United States. *Three hours a week. First semester.*

171. POLITICAL THEORY. A study of the theories in government with a special emphasis upon the theories of modern democracies. *Three hours a week.*

S173. PUBLIC OPINION. This course will deal with the elements of public opinion, the agencies which create public opinion and the methods of spreading, interpreting, formulating, and measuring public opinion. Offered in the summer school. *One session. Daily. Two credits.* Doctor Vandenbosch.

178a. INDEPENDENT WORK (Honors Course). A course designed primarily for seniors and graduate students who are majoring in the department of Political Science and who are capable of doing independent research. Consent of the head of the department is required for admission to this course. *One hour per week. First semester.*

178b. INDEPENDENT WORK (Honors course). Continuation of 178a. Admission conditions the same as 178a.

180a. INDEPENDENT WORK (Honors course). This course is designed primarily for seniors and graduate students majoring in the department of Political Science. *Three hours a week.* Professor Jones. Permission of the head of the department is necessary for admission to this course.

180b. INDEPENDENT WORK (Honors course). A continuation of 180a with the same entrance requirements. *Three hours a week.* Professor Jones.

HYGIENE

105a. ADVANCED HYGIENE. This course deals with the specific problems in the field of hygiene and the methods of prevention in each field. Prerequisites, 1a and 1b. *Two hours a week. Two credits. First semester.* Professor Rush.

105b. ADVANCED HYGIENE. A continuation of 105a. *Two hours a week. Two credits. Second semester.* Professor Rush.

106a. INDEPENDENT WORK. *Three hours a week. Three credits.* Doctor Rush.

106b. INDEPENDENT WORK. *Three hours a week. Three credits.* Doctor Rush.

107a. THESIS COURSE. Required of all students working for the master's degree. *One hour a week.* Doctor Rush.

108a. DISEASES OF OCCUPATION. A discussion of health hazards in the various professions and industries with emphasis placed upon preventive measures. Prerequisites, 1a and 1b. *Two hours a week. Two credits. Second semester. Summer school.* Professor Rush.

108b. DISEASES OF OCCUPATION. A discussion of health hazards in the various professions and industries with emphasis placed upon preventive measures. Prerequisites, 1a and 1b. *Two hours a week. Two credits. Second semester. Summer school.* Doctor Rush.

109. SEMINAR IN PUBLIC HEALTH. *One hour a week throughout the year. One credit.* Doctor Rush and staff.

MATHEMATICS AND ASTRONOMY
MATHEMATICS

102. VECTOR ANALYSIS. This course provides a thorough study of the algebra of vectors with numerous applications to geometry and solid analytics. Also a brief introduction to the calculus of vectors with applications to differential geometry, mechanics and physics. Given chiefly by lectures supplemented by collateral reading. *Three hours a week.* Associate Professor Rees.

103. THEORY OF EQUATIONS. An elementary course treating: Properties of determinants; properties of polynomials; fundamental theorem of algebra; solutions of numerical equations; limits of roots; separation of roots; relation between coefficients and roots; symmetric functions; elimination. *Three hours a week.* Associate Professor Downing.

104. ADVANCED ANALYTICS. This course is intended to bridge the gap between elementary analytics and modern geometry. Trilinear coordinates are introduced and some of the more important propositions relating to conic sections are proved. *Three hours a week.* Associate Professor Rees.

105a. DIFFERENTIAL EQUATIONS. A study of the more common types of ordinary differential equations with emphasis on geometrical interpretations and applications to geometry, elementary mechanics and physics, with a brief study of partial differential equations of the first order. *Three hours a week.* Professor Davis.

105b. DIEEFRENTIAL EQUATIONS. This course extends the study of the ordinary differential equations giving some particular attention to certain types of equations. The study of the partial differential equation is extended to those of the second and higher orders. *Three hours a week.* Professor Davis.

106a. ADVANCED CALCULUS. Review of the fundamental theory from a more advanced viewpoint. Fundamental theorems on continuous functions; Taylor's formula for n variables; Jacobians; envelopes of curves and surfaces; series. *Three hours a week.* Associate Professor LeStourgeon.

106b. ADVANCED CALCULUS. Cauchy-Riemann integration; mean value theorems; selected topics, including an introduction to Fourier series, gamma and beta functions, elliptic integrals and elements of elliptic functions with attention to problems and applications. *Three hours a week.* Associate Professor LeStourgeon.

107. PROJECTIVE GEOMETRY. A study of the content and the methods of modern synthetic geometry. It is designed also as an introduction to the course in Geometric Transformations. *Three hours a week*. Dean Boyd.

109. THEORY OF FUNCTIONS OF A COMPLEX VARIABLE. This is an introductory course based largely on Townsend's "Theory of Functions of a Complex Variable." Emphasis is placed on geometrical interpretations of the analysis. *Three hours a week*. Associate Professor Rees.

110a. INDEPENDENT WORK IN MATHEMATICS. The student is assigned some topic or line for investigation. He confers with the professor in charge each week and prepares a written report covering the work of the semester for presentation before the departmental faculty. *Three credits*. Dean Boyd and others.

110b. INDEPENDENT WORK IN MATHEMATICS. A continuation of 110a. *Three credits*. Dean Boyd and others.

111. HIGHER ALGEBRA. Selected topics from algebra with emphasis on the relations of algebraic theories to geometry. Properties of matrices, invariant factors and elementary divisors; algebraic theory of a single quadratic or bilinear form; theory of pairs of quadratic or bilinear forms. *Three hours a week*. Associate Professor LeStourgeon.

201a. GEOMETRIC TRANSFORMATIONS. Homogeneous coordinates are usually developed first. Then follow in order the projective transformations in the binary, ternary and quarternary fields. Invariant theory and groups of transformations are also included. The material varies from year to year. *Three hours a week*. Dean Boyd.

201b. GEOMETRIC TRANSFORMATIONS. A contiuation of 201a. *Three hours a week*. Dean Boyd.

202a. ALGEBRAIC CURVES. This course covers the classic theory as presented by such authors as Salmon and Wieleitner. The material varies from year to year. *Three hours a week*. Dean Boyd.

202b. ALGEBRAIC CURVES. A continuation of 202a. *Three hours a week*. Dean Boyd.

203. THESIS. The work on the master's thesis is recorded under this number. It is rated as three credits, but is not to be included in the twenty-four required for the master's degree. Dean Boyd and others.

ASTRONOMY

251a. CELESTIAL MECHANICS. This part of the course deals with differential equations of motion and their solution for various laws of force, laws of force from known motion, attraction, potential, problem of two bodies. *Three hours a week*. *First semester*. Associate Professor Downing.

251b. CELESTIAL MECHANICS. A continuation of 251a, dealing with the problem of three bodies, determination of orbîts, perturbations, the lunar theory, precession and nutation. *Three hours a week. Second semester. Associate* Professor Downing.

PHILOSOPHY

101a. HISTORY OF PHILOSOPHY. A critical study of the chief systems of Greek Philosophy and of the Theological Philosophy of the Middle Ages. *Three hours a week. First semester.* Professor Terrell.

101b. HISTORY OF PHILOSOPHY. A continuation of 101a. A similar study of Modern Philosophy *Three hours a week. Second semester.* Professor Terrell.

102. LOGIC—DEDUCTIVE AND INDUCTIVE. In the study of Deductive Logic our attention is fixed upon the syllogism. In Inductive Logic a study is made of the methods which have proved so successful in the development of science. *Three hours a week. First semester.* Professor Terrell.

103. ETHICS. A study of the origin and evolution of morals, the good and evil, right and wrong, good citizenship, etc. *Three hours a week. Second semester.* Professor Terrell.

105. PHILOSOPHY OF RELIGION. A comparative study of the leading religions, the origin of religion, an anlysis of the notions about sacrifice, sin, the atonement, etc. *Three hours a week. Both semesters.* Professor Terrell.

107a. POLITICAL PHILOSOPHY. This course is devoted to a study of Plato's Republic, the ideas and ideals of the Platonic Socrates. Not given in 1927-28. *Three hours a week. First semester.* Professor Terrell.

107b. POLITICAL PHILOSOPHY. Aristotle's politics, an analysis of his criticism of Plato and a special study of his methods of approach to the subject as contrasted with Plato. Not given in 1927-28. *Three hours a week. Second semester.*

108. THE MAKING OF THE MODERN MIND. A study from the Middle Ages to the present time of the influences which have made the modern mind what it is today. Attention will naturally be fixed on such subjects as the Renaissance, the Reformation, Humanism, Age of Reason, Romanticism, the changes wrought by scientific discoveries, the world as a process of growth, the rise of the modern Democratic spirit—all examined from the viewpoint of Philosophy. *Three hours a week. Both semesters.* Professor Terrell.

PHYSICS

The Department of Physics is well equipped with instruments of precision and has adequate library facilities necessary to the proper conduct of the following list of advanced and graduate courses:

101. THEORY OF HEAT. A lecture and experimental course covering the fundamental principles of heat. Opportunity is offered to use the gas thermometer, resistance thermometer and various types of radiation pyrometers, determination of vapor pressure and densities, coefficients of viscosity, freezing and boiling points, latent and specific heats, heats of combustion, thermal conductivities, calibration of thermo-couples, etc. Given in 1925-26. Prerequisites, Mathematics 7a and 7b. *Lectures and recitations three hours, laboratory four hours a week.* Associate Professor Koppius.

102a. ELECTRICITY AND MAGNETISM. A course in the mathematical theory of electricity and magnetism. The laboratory work is designed to emphasize the principles covered and to give the student experience in the careful use of electrical measuring instruments. The course includes the modern methods of measuring current, high and low resistances, electromotive forces and power, the calibration of instruments employed, together with measurements of capacity, inductance, and the magnetization of iron. Given in 1926-27. Prerequisites, Mathematics 7a and 7b. *Lectures and recitations three hours, laboratory four hours a week.* Associate Professor States.

102b. ELECTRICITY AND MAGNETISM. A continuation of Physics 102a with particular emphasis on alternating current phenomena, transformers, transients, the vacuum tube and associated phenomena. Prerequisites, Mathematics 7a and 7b. *Lectures and recitations three hours, laboratory four hours a week.* Associate Professor States.

103. THEORY OF LIGHT. A course covering the general theory of reflection, refraction, diffraction and polarization. Prerequisites, Mathematics 7a and 7b. Given in 1927-28. *Lectures and recitations three hours a week, laboratory four hours a week.* Professor Webb.

104. ANALYTICAL MECHANICS. This course serves as an introduction to mathematical physics. Although the work is usually based upon some standard text, it is supplemented by lectures and extensions of the text in topics which are of primary interest to physicists. The student is expected to solve a representative list of problems. Given in 1927-28. Prerequisites, Mathematics 7a and 7b. *Lectures and recitations five hours a week.* Professor Koppius.

111. ELECTRICITY AND MAGNETISM. This course comprises the lectures and recitations of course 102a. Given in 1926-27. Prerequisites, Mathematics 7a and 7b. *Lectures and recitations three hours a week.* Associate Professor States.

113. RADIO COMMUNICATION. Prerequisites, 3b and 6. *Recitation two hours per week, laboratory two hours per week. three credits.*

201. PHYSICAL OPTICS. This course covers in mathematical formulation the theories of interference and diffraction, the theory of optical instruments, the propagation of light in crystalline media and a comparison of the various theories of light. Prerequisite, Physics 103. Given in 1926-27. *Lectures and recitations three hours a week.* Professor Webb.

202. MEASUREMENTS IN OPTICS. A course in the measurement of wave lengths, Fresnell Mirrors and Biprisms, determination of optical constants by Michelson's Interferometer, reflection and transmission grating, spectroscopes and concave grating spectographs. This course is designed to supplement 201. Prerequisite, Physics 103. Given in 1926-27. *Laboratory four hours a week.* Professor Webb.

203. KINETIC THEORY OF GASES AND THERMODYNAMICS. A course of lectures covering the classical kinetic theory of gases, including the theorems of Clausius, Joule, Maxwell and Boltzman. Coefficients of viscosity and slip, Bownian movements and specific heat relations are treated from the kinetic theory standpoint and equations of change of state are developed. The basis for the laws of thermodynamics are discussed and their physical applications. Prerequisites, 7a and 7b. Given in 1926-27. *Lectures and recitations three hours a week.* Associate Professor Koppius.

204. DYNAMICS OF A PARTICLE, INCLUDING WAVE MOTION. A mathematical presentation of the dynamics of a particle in a conservative medium, and the calculations of the velocity of propagation of various wave forms and their synthesis and analysis by Fourier's theorem. A study of the velocity of propagation as a function of wave length, including a consideration of varying degrees of freedom and boundary conditions. Prerequisite, Physics 104. Given in 1926-27. *Lectures and recitations three hours a week.* Professor Webb.

212. CONDUCTION OF ELECTRICITY THROUGH GASES. A course of lectures covering in chronological order the outstanding discoveries connected with the conduction of electricity through gases at low pressures. The subjects of diffusion, ionic mobility, e/m measurements, positive ray analysis, isotropes, etc., are treated. Prerequisites, Physics 102a and 104. Given in 1926-27. *Three hours a week.* Associate Professor Koppius.

213. ELECTRO-MAGNETIC THEORY OF LIGHT. A course of lectures covering the classical magnetic theory as applied to the optical phenomena of reflection, refraction and polarization. Both isotropic and non-isotropic media as well as conducting and non-conducting media

are treated. Prerequisite, Physics 103. Given in 1927-28. *Three hours a week*. Associate Professor States.

214. TRANSIENT ELECTRIC AND VACUUM TUBE PHENOMENA. A theoretical and experimental study of transient currents in circuit containing variable amount of inductance, capacitance and resistance. Investigation of various types of coupled circuits including vacuum tube circuits. Theoretical and experimental study of various types of vacuum tubes including 2, 3 and 4 element tubes, and the measurements of their characteristics and application to problems of radio transmission and reception. Prerequisites, Physics 3b and 6 and 113 or 102a; Mathematics 105. *Lectures and laboratory. Three credits*.

215. .QUANTUM THEORY. A course of lectures covering the historical development of the quantum hypothesis. Review of the fundamentals of thermodynamics. Application of the quantum theory to black body radiation, to specific heats, to Bohr-Sommerfeld theory of the spectra of the lighter elements and to X-ray spectra. Prerequisites, Physics 104 and Mathematics 105. Given in 1925-26. *Three hours a week*. Associate Professor States.

220a. SEMINAR. A weekly meeting of the staff and advanced students of the department for presentation and discussion of recent developments in physics as reported in the current literature and of work in progress in the department. Credit is given only to those who satisfactorily present papers. *Two hours a week. One credit*.

220b. SEMINAR. A continuation of 220a. *Two hours a week. One credit*.

225. THESIS. This course is intended for graduate students who are prepared to undertake social problems. Except in the case of a purely mathematical problem the entire time is to be devoted to work in the laboratory. Professors Webb and Pence; Associate Professors States and Koppius.

PSYCHOLOGY

The department has accumulated for a number of years a mass of test records of the intelligence, special abilities and achievements of students in all the colleges in the University. It also has estimates of personal traits and the histories of many students. Taken together, these afford a rare opportunity for graduate work in student personnel problems.

Another field in which special facilities are provided is that of the psychological clinic. The department has maintained such a clinic for five years. It has also established close contacts with the public schools, the welfare agencies, the Eastern State Hospital for the Insane, the reformatory institutions, and the State institution for the feeble-minded, all of which are located at or near Lexington. The department staff

includes a Certified Consulting Psychologist of the American Psychological Association and the Director of the Kentucky Station of the Psychological Corporation. These are the two national organizations for conducting authoritative work in applied psychology.

The department undertakes special research also in business and industrial personnel problems and in the development and training of normal children. It is well equipped for experimental or statistical studies in these fields.

Laboratory appartus, test equipment and library facilities are available for advanced work in the following list of courses for which a year's work in general psychology is a prerequisite.

102a. GENETIC PSYCHOLOGY. A comparative study of the genesis and development of behavior through the animal series, beginning with the lowest organisms. *Two hours a week. First semester.* Associate Professor Basset.

102b. GENETIC PSYCHOLOGY. Continuation of 102a. A study of the development of the child infancy through adolescence. *Two hours a week. Second semester.* Assistant Professor Boyton.

104. SOCIAL PSYCHOLOGY. Interpretations of the behavior of the individual as a member of society. Emphasis is placed upon such topics as the instinctive basis of behavior, the relation of the individual to the mob, leadership, capital and labor, personality, religion and morality, and the influence of intelligence and race. *Three hours a week. First semester.* Associate Professor Basset.

107. PSYCHOLOGICAL INTERPRETATION. Problems of unusual behavior: Subconscious activities, psychotherapy, secondary personalties, genius, psychic phenomena and pathological mental states. *Three hours a week. Second semester.* Professor Miner.

108a. HUMAN MEASUREMENTS. Theories of intelligence. History of mental testing with interpretations of results. Especial attention is paid to the advantages and disadvantages of different methods of testing mental alertness, and their application to children. *Two hours a week. First semester.* Assistant Professor Boynton.

108b. HUMAN MEASUREMENTS. The methods of measuring special aptitudes and proficiency, including rating methods and tests of personality traits, motor or trade skill and achievement in particular fields. *Two hours a week. Second semester.* Professor Miner.

109a. DIAGNOSIS OF DEVELOPMENT. A practice course in giving and scoring mental tests, together with the interpretation of test data. Particular emphasis is placed upon the Stanford Revision of the Binet-Simon tests. Prerequisite or concurrent, 108a or 108b. *One hour discussion, three hours practice a week. Two credits. First semester.* Associate Professor Basset.

109b. DIAGNOSIS OF DEVELOPMENT. A continuation of 109a. The use of group and performance tests. Special reference to other factors than intelligence. Prerequisite or concurrent, 108a or 108b. *Two credits. Second semester.* Associate Professor Basset.

110. EXPERIMENTAL METHODS. An intensive course dealing with the methods of controlling conditions and measuring responses in the psychological laboratory. *Three credits. First semester.* Assistant Professor Graham.

112. PERSONNEL MANAGEMENT. The functions of a personnel department in business and industry. The scientific practices in the study of labor turnover; the selection and placement of employes, their training, supervision and motivation. *Three credits. Second semester.* Professor Miner.

113. PSYCHOLOGY OF LEARNING. An advanced experimental course dealing with the learning process. The nature of learning, interpretations of learning curves, economical methods of learning, effect of different methods of learning upon amount retained, individual differences in learning ability, and transfer of training. *Two hours recitation. Two hours laboratory a week. Second semester.* Assistant Professor Boynton.

114. ABNORMAL PSYCHOLOGY. A course in the abnormal phases of behavior which require special recognition and special training in connection with delinquencies, family welfare, school adjustment and social contacts. The relation of unusual development to mental accidents, repressions, environmental and hereditary factors will be treated. Mental diseases will be considered only so far as is necessary to recognize the need for psychiatric consultation and to develop methods of training when these are warranted. Prerequisite, general psychology. *Three credits. Second semester.* Associate Professor Basset.

115. MEASUREMENTS OF HUMAN RELATIONSHIPS. An advanced course which considers the treatment and interpretation of human measurements. The course deals with the computation of simple, partial and multiple correlations, regression coefficients, best scoring methods, correlation ratios, reliabilities, and other methods applicable to a thorough analysis of data. A knowledge of central tendencies and deviations is assumed. *Two hours recitation and a two-hour practice period. Three credits.* Assistant Professor Boynton.

120a. INDEPENDENT WORK IN PSYCHOLOGY. *Two credits. First semester.* Professor Miner, Associate Professor Basset, Assistant Professors Boynton and Graham.

120b. INDEPENDENT WORK IN PSYCHOLOGY. *Two credits. Second semester.* Professor Miner, Associate Professor Basset, Assistant Professors Boynton and Graham.

201a. SEMINAR IN PSYCHOLOGY. One two-hour discussion a week. *One credit. First semester.* Professor Miner and the members of the department.

201b. SEMINAR IN PSYCHOLOGY. One two-hour discussion a week. *One credit. Second semester.* Professor Miner and the members of the department.

202. PSYCHOLOGICAL CLINIC. A study of the organization and conduct of a clinic. The diagnosis of maladjustments and plans for corrective training. Prerequisite 109a and b. Associate Professor Basset.

201a. RESEARCH IN PSYCHOLOGY. *Three credits. First semester.* Professor Miner, Associate Professor Basset.

210b. RESEARCH IN PSYCHOLOGY. *Three credits. Second semester.* Professor Miner, Associate Professor Basset.

ROMANCE LANGUAGES AND LITERATURES
FRENCH

109a. FRENCH LITERATURE OF THE XIX CENTURY. The works of the wirters of XIX century are studied, *i. e.,* Victor Hugo, Thiophile Yantin, DeMusset, and Daudet. *Three hours a week. First semester.* Professor Zembrod.

109b. FRENCH LITERATURE OF THE XIX CENTURY. A continuation of 109a. *Three hours a week. Second semester.* Professor Zembrod.

110a. FRENCH LITERATURE OF THE XVII CENTURY. The classics of Corneille, Racine and Moliere are studied. Students are to familiarize themselves with the history of French society and civilization. Reports written in French are to be handled at regular intervals. Advanced lessons in syntax and composition once a week. *Three hours a week. First semester.* Professor Zembrod.

110b. FRENCH LITERATURE OF THE XVIII CENTURY. A continuation of 110a. *Three hours a week. Second semester.* Professor Zembrod.

SPANISH

104a. SPANISH LITERATURE. Spanish novel and drama, syntax and composition. *Three hours a week. First semester.* Professor Server.

104b. SPANISH LITERATURE. A continuation of 104a. *Three hours a week. Second semester.* Professor Server.

112a. SPANISH LITERATURE. Spanish novel and drama, syntax and composition. This course enables the student to become familiar with some of the works of the greatest novelists and dramatists of the golden age of Spain's literary history, and also of the second half of the XIX century. *Three hours a week. First semester.* Professor Server.

112b. SPANISH LITERATURE. A continuation of 112a. *Three hours a week. Second semester.* Professor Server.

113a. ROMANCE LANGUAGES. This course is for graduate students who are majoring in one of the romance languages. No definite work is put down. Work is assigned to suit the needs of the students. A good reading knowledge of German is essential. *Three hours a week by special appointment.* Professor Zembrod.

113b. ROMANCE LANGUAGES. A continuation of 113a. *Three hours a week by special appointment.* Professor Zembrod.

SOCIOLOGY

101. SOCIAL DEPENDENCE. A study of poverty and social dependence, and of measures of relief afforded through philanthropic agencies or organized charity, together with general or special measures for the prevention, elimination, or reduction of poverty, and for social betterment. *Three hours a week. First semester.* Professor Best.

102. SOCIAL PATHOLOGY. A study of mortality rates, of diseases and accidents, and of mental and physical defectiveness, from a sociological point of view, together with a consideration of general social measures for prevention and treatment. *Three hours a week. Second semester.* Professor Best.

103. CRIMINOLOGY. A study of general conditions as to crime and delinquency, of measures of punishment and reform of the prisoner, of criminal procedure and its possible reform, and of measures for the prevention of crime. *Three hours a week. First semester.* Professor Best.

104. RURAL PROBLEMS. A study of the conditions and problems of the country districts and of the smaller towns and villages, and of practical measures for the advancement of such communities. *Three hours a week. Second semester.* Professor Best.

105. SOCIAL SYSTEMS. A study of social systems that have existed or have been proposed from early times, together with an examination of the theories of representative sociologists. *Three hours a week. First semester.* Professor Best.

106. AMERICAN IMMIGRATION. A study of immigrant peoples and races in the United States, and of their general effects upon American life, together with an examination of a general national policy upon the subject. *Three hours a week. Second semester.* Professor Best.

107. COMMUNITY WELFARE WORK. A social service course involving a study, with practical observations, of actual social conditions among local communities, of the work of agencies and organizations dealing with them, and of general measures for their improvement. *Three hours a week. First semester.*

108. COMMUNITY SURVEYS. A social service course, involving a study of aims and methods in community surveys, with practical observation and experimenting. *Three hours aweek. Second semester.*

109. THE FAMILY. A study of the family, both in its historical aspects and in connection with the problems before it under modern conditions. *Three hours a week. First semester.*

110. CHILD WELFARE. A study of the position and needs of the child in modern life, especially the dependent, delinquent and defective child, with an examination of organizations and agencies for the care or protection of children. *Three hours a week. Second semester.*

111. CITY PROBLEMS. A study of the growth and development of the city, and of the problems before it under modern conditions. *Three hours a week. First semester.*

112. COMMUNITY ORGANIZATION. A study of the theory and of practical results of organization among individuals and different agencies in the community for the advancement of its life. *Three hours a week. Second semester.*

201a. SOCIOLOGY SEMINAR. Consideration mainly of theses, methods of research, and current sociological literature. *One hour a week. First semester.* Professor Best.

201b. SOCIOLOGY SEMINAR. Continuation of 201b. *One hour a week. Second semester.* Professor Best.

DEPARTMENT OF ZOOLOGY

101a. HISTOLOGY. Histology of the tissues. Prerequisite, Zoology 1a and 1b. Lectures and laboratory work on the preparation of material for microscopic study. The latter part of the course is designed to acquaint the student with microscopic manipulation and at the same time familiarize him with the tissues of the animal body. *Lecture one hour, laboratory four hours a week. First semester.* Assistant Professor Brauer.

101b. HISTOLOGY. Prerequisite, Zoology 101a. Histology of the organs. A continuation of course 101a. Lectures and laboratory work on the microscopic anatomy of the animal body. *Lecture one hour, laboratory four hours a week. Second semester.* Assistant Professor Brauer.

104. EMBRYOLOGY. A general course in ontogeny. Lectures on maturation, fertilization, cleavage, organogensis, and anomalies of development. The laboratory work consists of a study of the germ cells, maturation, cleavage and development of the chick and of the pig. *Lecture one hour, laboratory four hours a week. Second semester.* Assistant Professor Brauer.

105. MEDICAL ENTOMOLOGY. Insects (and briefly other animals) affecting the health and comfort of man. Identification, life histories, and etiology of many important species. Methods of study and methods of control. For pre-medical students. *Lecture one hour, recitation one hour, laboratory two hours a week. First semester.* Associate Professor Allen.

107a. COMPARATIVE ANATOMY. Invertebrates. (1) Systematic consideration of all important phyla, classes, orders, and a few families. (2) Dissection of a few types not previously studied. (3) Identification and drawings of external aspects of many genera. (4) Life histories. (5) Comparative organology and physiology of higher phyla. *Lecture one hour, recitation one hour, laboratory four hours a week. First semester.* Associate Professor Allen.

107b. COMPARATIVE ANATOMY. Vertebrates. (1) Systematic, consideration of classes, orders, and some families of Vertebrata. (2) Detailed dissection of types not previously studied. (3) Comparative organology and (briefly) physiology of the several classes. (4) Preparation of charts and diagrams of nervous systems, urinogenital systems, and vascular systems. (5) Identification and demonstration of the bones of at least the Mammalian skeleton. *Lecture one hour, recitation one hour, laboratory four hours a week. Second semester.* Associate Professor Allen.

108a. PRINCIPLES OF ZOOLOGY. An advanced lecture course open only to juniors, seniors and graduate students on the fundamental principles of biology. The first semester is devoted primarily to the study of organic evolution. *Lectures three hours a week. Two credits. First semester.* Professor Funkhouser.

108b. PRINCIPLES OF ZOOLOGY. A continuation of 108a. The second semester is devoted to the study of heredity, eugenics and animal instincts. *Lectures three hours a week. Two credits. Second semester.* Professor Funkhouser.

110a. INDIVIDUAL WORK. Special problems for individual students who are capable of pursuing independent investigations. *Laboratory and library work six hours a week. Three credits.* Professor Funkhouser, Associate Professor Allen, Assistant Professor Brauer.

110b. INDIVIDUAL WORK. A continuation of 110a. *Laboratory and library work six hours a week. Three credits.* Professor Funkhouser, Associate Professor Allen, Assistant Professor Brauer.

112. ICHTHYOLOGY. (1) Taxonomy of the fishes. Use of keys and literature. Drawing types of families. (2) Life histories and biology of many type species, illustrated by photographs. (3) Fish structure and physiology. (4) Fish culture and economic ichthyology; care of fishes, aquaria, etc. (5) Special studies, such as blind fishes, deep sea

fishes, etc. *Lectures three hours a week. First semester.* Associate Professor Allen.

114. ZOOLOGICAL SEMINAR.)1) Occasional presentation of the results of research by members. (2) Reports on papers of technical or semi-technical nature in the current literature. (3) Occasional book reviews. (4) Discussion of biological principles and phenomena. (5) Biological news notes. *Two hours a week. One credit.* Professor Funkhouser, Associate Professor Allen, Assistant Professor Brauer.

201a. HERPETOLOGY. Systematic and taxonomic studies of the Reptilia. For graduate students only. *Lectures two hours, laboratory two hours a week. First semester.* Professor Funkhouser.

201b. HERPETOLOGY. A continuation of 201a. *Lectures two hours, laboratory two hours a week. Second semester.* Professor Funkhouser.

202a. SYSTEMATIC ENTOMOLOGY. Research work on special groups of insects requiring advanced study in the literature of the subject and designed for students who desire to specialize in entomology. For graduate students only. *Lecture one hour, recitation two hours, laboratory two hours a week. First semester.* Professor Funkhouser.

202b. SYSTEMATIC ENTOMOLOGY. A continuation of 202a. In the second semester special attention is paid to entomotaxy and the bibliography of the group studied. *Lecture one hour, recitation two hours, laboratory two hours a week. Second semester.* Professor Funkhouser.

COLLEGE OF AGRICULTURE
THOMAS P. COOPER, B. S. in Agr., Dean and Director

AGRICULTURAL ENTOMOLOGY

101. ECONOMIC ENTOMOLOGY. Research problems on selected injurious insects, chiefly devoted to a study of their life-histories and to their treatment. *Three credits.* Professor Garman.

AGRONOMY

101. METHODS AND RESULTS OF FIELD EXPERIMENTATION. The essentials of reliable field experimentation, the planning and laying out of model experiments, and a study of the results obtained by experiment station workers and other investigators. Special attention is given to the interpretation of field results. Designed for students who expect to teach or engage in experimental work. Prerequisite, Agronomy 1. *Lectures two hours a week. First semester.* Professor Roberts.

105. ADVANCED CROPS. The important crops are studied in more detail than is possible in the standard course in crops. Structure, classification and history of crop plants are given special attention. Soil and climatic adaptation, economics of production, and numerous other fundamental problems of crop production are studied. To as large an extent as possible the best crop literature is reviewed. Some attention is given to the more practical phases of production, chiefly to give students an opportunity to become familiar with advances that have been made in the art of crop production in recent years. *Lectures three times a week. Second semester.* Professor Kinney.

106. FIELD CROP IMPROVEMENT. In this course principles of genetics applicable to plant breeding, technique of breeding and development of plant breeding in the past are studied. Classification and inheritance of the various crops and the problems of improvement connected with each are given attention. *Lectures two hours a week. Second semester.* Professor Kinney and Assistant Professor Fergus.

108. ADVANCED SOILS. Reference and classroom work on soil properties, processes and management in relation to plant growth mainly from the theoretical and technical standpoint. Laboratory work in reference to soils, plant and fertilizer materials. The course is designed to give the student some acquaintance with the methods and results of laboratory and greenhouse investigations along soil lines. Prerequisite, Agronomy 2 and Chemistry 8 or 11. *Lectures two hours a week, laboratory four hours a week. Second semester.* Associate Professor Karraker.

201. SPECIAL PROBLEMS IN SOILS. *Three credits. Either semester.* Professor Roberts, Associate Professor Karraker.

202. SPECIAL PROBLEMS IN CROP PRODUCTION. *Two credits. Either semester.* Professor Kinney.

203a-203b.   LITERATURE OF PLANT PATHOLOGY.   *Three credits. Each semester*. Associate Professor Valleau.

ANIMAL INDUSTRY

101.   ADVANCED DAIRY CATTLE JUDGING.   A course designed to train students to become expert judges of dairy cattle. Prerequisite, Animal Industry 17. *Two credits. Second semester*. Professor Hooper.

102.   FARM BUTCHERING AND CURING OF MEATS.   Prerequisite, Animal Industry 1 and 17. All classes of farm animals are slaughtered and blocked out. A comparative study is made of the animals on foot as well as on the hook. A comprehensive study is made of the major and minor wholesale cuts, and of the retail cuts of meat. A general study is made of the meat industry along with some of its major branch industries. Different cures are studied giving special attention to pork cures and curing. *Four credits. First semester*. Associate Professor Wilford.

104.   ANIMAL BREEDING.   The purpose of the course in Animal Breeding is to acquaint the student with the origin of domestic live stock, with the development of the purebred breeds of live stock, with an analysis of the blood lines of the breeds, with a study of the methods by which the breeds have been built up and are being maintained and with the possibilities of future breed improvement. Prerequisite, Animal Industry 119. *Three hours lecture. Two hours laboratory by appointment. Four credits. Second semester*. Professor Anderson.

105.   BEEF PRODUCTION.   In this course a study is made of the history of the development of the beef cattle industry in this, and other countries. The feeding, breeding and management of beef cattle are given the most attention. The laboratory work consists in judging beef cattle and practical problems related to the industry. Prerequisite, Animal Industry 20. *Lecture two hours, laboratory two hours per week. Three credits. Second semester*. Professor Good.

106.   PORK PRODUCTION.   This is an elective course for juniors, seniors and graduate students. A study is made of the general management and feeding of all classes of swine, supplemented with judging and practical laboratory exercises. *Three credits. First semester*. Associate Professor Wilford.

107.   SHEEP PRODUCTION.   This is an elective course for juniors, seniors and graduate students. A study is made of the history and development of the sheep industry, the breeds of sheep and the care and management of the farm flock. The wool industry is studied from the standpoint of the producer. A small part of the course is devoted to a study of range sheep production. *Three credits. Second semester*. Associate Professor Horlacher.

110. ADVANCED STOCK JUDGING. This is an advanced course in live stock judging primarily for candidates for the live stock judging team. Numerous trips are made to Kentucky stock farms and the best student judges in the class are selected to represent the University in the Intercollegiate judging contest at the International Live Stock Exposition. *Three credits. First semester.* Associate Professor Horlacher.

111a and b. SPECIAL PROBLEMS IN ANIMAL PRODUCTION. Individual work in any phase of animal production in which the student is particularly interested. *Three credits.* Staff.

112. ADVANCED POULTRY JUDGING. In this course the more advanced problems involved in incubation, brooding, poultry diseases, feeding and flock management will be considered. The laboratory work will consist of the actual operation of incubators and brooders, the treatment of diseased birds and the feeding of the laying flock. Prerequisite, Animal Industry 2. *Lecture three hours, laboratory two hours a week. Four credits. Second semester.* Associate Professor Martin.

113. LIVE STOCK JUDGING. This is an elective course in which the student is given training in the judging of beef cattle, draft horses, sheep and hogs. It must be preceded by Animal Industry 1 and 17. It is designed to give training in judging to those students who intend to compete for the judging team or who are planning to go into county agent work or teach agriculture in high schools. *Two credits. Second semester.* Associate Professor Horlacher.

118. DAIRY MANUFACTURES. A course outlined to teach the science and practice of handling city milk supply, including process of condensing; butter, cheese and ice cream making. Designed to train plant foremen and assistant managers. *First semester. Five credits.* Assistant Professor Barkman.

119. GENETICS. The purpose of Genetics is to acquaint the student with the laws of heredity. This is done by a study of variation, a study of the chromosomes and chromosome content, a study of hybridization, a study of the theory of the gene and a study of the method by which the laws of genetics may be applied to human conservation. Prerequisite, one semester's work in either Botany or Zoology. *Three hours lecture. Three credits. First semester for men. Second semseter a section for men and a section for women.* Professor Anderson.

120. SYSTEMS OF LIVE STOCK PRODUCTION. This is a general course dealing with the systems of live stock production followed in the different countries of the world and is designed to give the student a broad view of the live stock industry. Prerequisites, Animal Industry 1 and 17. *Three credits. First semester.* Associate Professor Horlacher.

121. ADVANCED GENETICS. This course deals with the more complex problems of heredity such as linkage, crossing-over, the theory of the gene and the more extensive study of the means by which Genetics may be applied to human conservation. Opportunity is also offered in this course for the student to become acquainted with the current literature bearing upon Genetics and Eugenics. Prerequisite, Animal Industry 119. *Three lectures. Three credits. First semester.* Professor Anderson.

122. ADVANCED POULTRY BREEDING. The fundamental genetic principles involved in poultry breeding will be studied. Particular emphasis is laid on the transmission of egg production, broodiness, egg shell color and feather color. A definite breeding program to be followed in building up the poultry flock will be analyzed and studied in detail. Prerequisite, Animal Industry 119. *Lecture two hours a week. Two credits. First semester.* Associate Professor Martin.

123. EXHIBITION AND PRODUCTION POULTRY JUDGING. Systematic culling and judging hens for egg production will be studied in detail. Breed type and other exhibition qualities will also be studied. The time will be equally divided between judging for production and exhibition qualities. Prerequisite, Animal Industry 2. *Laboratory four hours a week. Two credits. First semester.* Associate Professor Martin.

201. ECONOMIC FACTORS INVOLVED IN MEAT PRODUCTION. This course involves a problem in the feeding and management of beef cattle, or sheep or swine. *Three credits.* Professor Good, Associate Professor Horlacher, Associate Professor Wilford.

202. MEATS. The student is assigned a definite problem of investigation related to meats. *Three credits.* Associate Professor Wilford.

203. RESEARCH IN GENETICS. A special problem involving some principles of Genetics is assigned. *Three credits.* Professor Anderson.

204. INVESTIGATIONS IN FEEDING DAIRY ANIMALS. *Three credits.* Professor Hooper.

205. INVESTIGATIONS IN BREEDING LIGHT HORSES. *Three credits.* Professor Anderson.

206a-b. RESEARCH IN POULTRY. Special problems are assigned involving methods of investigation on the part of the student. *Thruout the year. Three credits each semester.* Associate Professor Martin.

207. INVESTIGATIONS IN WOOL. The student is assigned a definite problem to be worked out in conection with the flock of sheep on the Experiment Station Farm. *Three credits.* Associate Professor Horlacher.

208. RESEARCH IN ANIMAL BREEDING. Some problem in the breeding or improvement of farm animals is undertaken. *Three credits.* Professor Anderson.

209a-b. SEMINAR. Each semester devoted to a discussion of some special phase of animal industry. Required of graduate students majoring in Animal Industry. *One credit. Each semester.* Staff.

VETERINARY SCIENCE

114. ANATOMY OF DOMESTIC ANIMALS. Instruction in anatomy is by lectures, recitation, demonstration and dissection. The objects of the lectures are to present facts of general morphology of the horse and other domestic animals, and to show the correlation of structure and function of the various organs of the body. The student will be required to dissect all parts of the horse, or ox, and such parts of other domestic animals as may be necessary to show the variation, met with in the different species of domestic animals. The work is confined wholly to gross anatomy and is taken up by the system: Anatomy of bones and joints, digestion, apparatus, respiratory system, heart, and blood vessels, nervous system, genito urinary systems, etc. *Three credits. First semester.* Doctor Dimock, Doctor Bullard.

115. PHYSIOLOGY OF DOMESTIC ANIMALS. Instruction is by lectures, recitation and laboratory. The course is outlined so that the work given will aid the student in comprehending the vital processes of the animal body. The work is taken up by systems, the normal and vital function of each sytem being taken up in detail and the correlation and dependence of the function of one system upon another is emphasized. In the laboratory work emphasis is placed upon processes of absorption, metabolism, excretion, etc., such as digestion, respiration, blood, urine analysis, milk, and the muscular and nervous system. This course gives the student a good foundation to understand the principles of feeding, care, etc. *Three credits. Second semester.* Doctor Bullard.

116. DISEASES OF DOMESTIC ANIMALS. It is essential that the student has had some work in bacteriology, zoology and physiology. The subject matter of the course deals with the various infectious and parasitic diseases of animals, their distribution, general nature, methods of dissemination, sanitation and prevention. The work is presented from the standpoint of hygenic and preventive medicines, special emphasis being placed on those diseases that are transmissable to man. Lectures, recitation and reference reading. *Four credits. First semester.* Doctor Dimock, Doctor Hull.

FARM ECONOMICS

103a-103b. AGRICULTURAL ECONOMICS SEMINAR. Preparation and presentation of papers on current problems in the field of agricultural economics. Round table discussions, centering on the subject matter treated in the various student reports, are held at each meeting. *Two*

hours a week. First semester and second semester. Farm Economics Staff.

104. ADVANCED FARM COST ACCOUNTING. A course dealing with the problems arising in connection with the various processes in agricultural cost finding. Developments of theory will be considered, and attention will be devoted to posting, summarizing and analyzing complete cost records. Prerequisite, Farm Economics 3. *Laboratory four hours a week. First semester. Repeated second semester.* Mr. Finn.

107-107b. SPECIAL PROBLEMS IN FARM MANAGEMENT. Students enrolling in this course are assigned some special problem, as for example, the cost of producing some class of farm products such as dairy products, crops or livestock, the problem of profitable farm organization in a specified community; farm taxes, etc. Students are required to review the literature of the problem and report on it regularly to the instructor. In most cases they are also required to examine, classify and tabulate special statistical data previously collected by the College of Agriculture and to relate these data to the problem. Each student presents a final report showing results and conclusions arrived at. *First and second semesters.* Professor Nicholls.

108. LAND PROBLEMS. The course deals particularly with problems of farm ownership and tenancy. Phases of the problem considered are the following: The classification of agricultural land; economic characteristics and peculiarities of land; principles involved in the determination of rent; the relation of rent to other distributive shares in production; factors determining the value and appraisal of farm land; problems of farm tenancy; landlord-tenant contracts and characteristics of such contracts which have been mutually satisfactory to landlords and tenants. Prerequisite, Farm Economics 4. *Lectures two hours a week. First semester.* Professor Nicholls.

109. ADVANCED FARM MANAGEMENT. A course giving advanced consideration to the fundamental principles underlying the choice of a farm, the selection of crop and livestock enterprises, the management of labor and equipment and the organization of these elements into an efficient and profitable farm business. Trips are made to nearby farms that illustrate these principles and study is devoted to the records of other successfully operated farms of the state. Prerequisite, Farm Economics 113. *Lecture one hour. Laboratory two hours a week. Second semester.* Professor Nicholls.

113. FARM MANAGEMENT. The course consists in a study of the principles underlying the choice of proper types of farming; the comparative merits of intensive and extensive farming; the relation of livestock to farm management; the best size of farm; the relation of capital to farm profits; farm rental systems; the management of men

and horse labor and machinery for greatest profits; the layout of fields and farm buildings; farm accounts, including the annual inventory; the choice of a region for farming and important considerations in buying a farm; and other vital questions of farm organization and management. Prerequisite, Farm Economics 4. *Lecture, three hours a week. First semester*. Professor Nicholls.

202a-202b. RESEARCH IN FARM ECONOMICS. Open to graduate students. The student enrolling in this course is assigned an advanced problem in the field of farm economics. Stress is placed on the plan, technique and scientific method used by the student in developing his research problem. The student is required to submit a report embodying his methods generalizations and conclusions. Professor Nicholls.

MARKETING AND RURAL FINANCE

108. MARKETING. A study of the principles and methods of marketing farm products. Consideration is given to the services involved in marketing such as assembling, grading, transportation, warehousing, distribution, selling and financing; the methods of marketing at country points and in central markets; the classes and functions of middlemen; marketing specific commodities; market price and price-making factors; market information; market risks; future trading; marketing costs; grades and standards; cooperative marketing; and weaknesses in marketing methods and remedies proposed. Prerequisite, Economics 1a. *Lecture three hours a week. First semester*. Professor Jesness.

109. COOPERATIVE MARKETING. A study of principles, methods and problems involved in the cooperative marketing of farm products. The plans employed, progress made and problems encountered for different classes of farm products are studied. Consideration is given to pooling plans and methods, the essentials for success, membership contracts, forms of organization, methods of financing, organization procedure cooperative laws, incorporation, relation to anti-trust legislation and monopolistic aspects. Prerequisite, Marketing and Rural Finance 108. *Lectures three hours a week. Second semester*. Professor Jesness.

110. ADVANCED MARKETING. An advanced course designed to take up special aspects of marketing farm products. Special problems are assigned for class reports and as a basis for extensive written reports by the individual members of the class. Prerequisite, Marketing and Rural Finance 108. *Lectures three hours a week. First semester*. (Not offered in 1927-28.) Professor Jesness.

111. AGRICULTURAL PRICES. A study of the factors influencing prices of farm products, of price movements and trends, and of price relationships. Factors which affect prices are reviewed and considera-

tion is given to the possibilities and limitations of price fixing. Market price determination for various commodities is considered. Methods of price comparison, as illustrated by typical price indexes, are studied. Long time price movements and cyclical tendencies are reviewed. Methods of assembling and disseminating crop and market information, and progress in the formulation of outlook statements and in price forcasting are reviewed. Prerequisite, Farm Economics 4. *Lectures three hours a week. First semester.* Professor Jesness.

112. FARM FINANCE. A study of the principles involved in the financing of the production and marketing of farm products. Credit needs of agriculture, including short time, intermediate and farm mortgage credit requirements of the farmer are studied. The organization and operation of the farm loan system, and other agencies which aid in satisfying the credit needs of agriculture are considered. Methods of financing marketing operations, including the movement and storage of products and the financing problems of cooperative marketing associations are considered. Prerequisite, Farm Economics 4. *Lectures three hours a week. Second semester.* Assistant Professor Johnson.

201a. RESEARCH IN MARKETING AND COOPERATION. Open to graduate students who have the necessary training and ability to carry on work on individual problems. The course consists of individual work on some selected marketing problem and aims to acquaint the student with the literature dealing with the problem and to give him training in obtaining and analyzing facts with respect to specific problems and draw proper conclusions therefrom. *Three hours a week. First semester.* Professor Jesness and Assistant Professor Johnson.

201b. RESEARCH IN MARKETING AND COOPERATION. A continuation of 201a. *Three hours a week. Second semester.* Professor Jesness and Assistant Professor Johnson.

HOME ECONOMICS

104. PROBLEMS IN TEXTILES. Study of physical and chemical properties of major and minor fibers. Social and economic aspects of textile and clothing trades. Laboratory work includes microscopy of fibers, physical tests and quantitative determination of fabric content. Term papers based upon individual problems. *Lectures two hours, laboratory four hours a week. Second semester.* Assistant Professor Wade.

105a. SEMINAR IN NUTRITION. Investigations of recent research on normal nutrition. *One hour a week. Second semester.* Assistant Professor Erikson.

105b. SEMINAR IN NUTRITION. Investigations of recent research on nutrition. *One hour a week. Second semester.* Assistant Professor Erikson.

106. TEXTILE AND CLOTHING SEMINAR. Investigation of special textile and clothing problems. *One hour a week. First semester.* Assistant Professor Wade.

107a. EXPERIMENTAL COOKERY. Study of the application of chemical methods to the problem of cookery. It may include observations on affect of pH and determinations of losses in vegetable cookery; experimental work on batter and dough mixtures with special emphasis on the properties of strong and weak flours; shortening power of fats, properties of emulsions, comparison of slow and quick acting baking powders; an investigation of the jellying properties of fruit juices; analyses of flavoring extracts for adulteration. *Lectures two hours, laboratory six hours a week.* Professor Hopkins.

107b. EXPERIMENTAL COOKERY. A continuation of 107a. *Lectures two hours, laboratory six hours a week.* Professor Hopkins.

109. NUTRITION. Investigations in nutrition and metabolic processes of the body. It includes sugar tolerance tests; protein and mineral balance experiments on human subjects; biological tests for vitamins and protein of various foods. *Lectures two hours, laboratory four hours a week. Second semester.* Assistant Professors Erikson and Bullard.

110. CHILD CARE AND TRAINING. Survey of the field of child care and training from pre-natal life through the pre-school period. It includes consideration of problems of pre-natal life and infancy; standards for normal growth; breast and artificial feeding; habit formation; general care and hygiene. *Lectures two hours a week. Both semesters.* Professor Hopkins.

112. PUBLIC SCHOOL NUTRITION. A study of the nutrition class movement with emphasis on causes and effects of malnutrition, methods of judging nutrition and height and weight standards. Development of health programs in public schools. The laboratory work includes a health class with public school children. *Lectures two hours, laboratory two hours a week. Both semesters.* Assistant Professor Bullard.

114. ADVANCED TAILORING. A study of the economics of clothing, budgets. Suit and coat are made. *Lecture one hour, laboratory six hours a week. First semester.* Assistant Professor Wade.

121. SPECIAL INVESTIGATION IN FOOD, NUTRITION, HOUSEHOLD MANAGEMENT, CLOTHING OR TEXTILES. Special problems in undergraduate research. *Two credits.*

HORTICULTURE

102a. POMOLOGY. A detailed study of the stone fruits and small fruits including the history, botany, geography and an interpretation of cultural practice in terms of recent investigations. Prerequisites,

Botany 1a and 1b, Horticulture 1. *Lectures three hours, laboratory two hours a week. Second semester.* Mr. Waltman.

102b. POMOLOGY. A critical study of commercial grape and apple culture, including history, botany, geography, factors affecting fruitfulness, review of recent investigations on culture and pest control, harvesting and storing. Prerequisites, Botany 1a and 1b, Horticulture 1. *Lectures three hours, laboratory two hours a week. First semester.* Mr. Waltman.

107. VEGETABLE GARDENING. A study of the principles of vegetable gardening, classification and groups of vegetable crops, construction and management of hotbeds and cold frames, garden planning, sowing and planting, cropping systems, rotations, cultural methods, harvesting and storing. Prerequisites, Botany 1a and 1b. *Lectures three hours, laboratory two hours a week. Second semester.* Mr. Waltman.

109. MARKET GARDENING. Devoted to the study and practice of the principles involved in the commercial production and utilization of vegetable crops. A critical study is made of the principal vegetable crops of commercial importance, including propagation, choice of varieties, soil adaptation, soil preparation, fertilizing, management, pest control, harvesting and storing methods, and preparation of products for market. Prerequisites, Botany 1a and 1b, Horticulture 107. *Lectures two hours, laboratory four hours a week. Second semester.* Mr. Waltman.

115a-115b. SPECIAL PROBLEMS. This course is designed to permit advanced students to make intensive study of some phase of Horticulture in which they are pratically interested. The problem method requires the student to have an intimate knowledge of the material in question and is accompanied by a careful survey of the literature. *Three credits each semester.* Can be taken only with approval of the instructor. Professor Olney.

COLLEGE OF COMMERCE
EDWARD WIEST, A. M., Ph. D., Dean

102. LABOR PROBLEMS. A study of the labor market in its industrial phases, including such directly related topics as immigration, unemployment and labor organizations. Prerequisite or concurrent, course 1. *Three hours a week. First semester.* Assistant Professor Palmer.

103. TRANSPORTATION. Growth of the railway net; pools and traffic associations; principles and practice of rate-making as exemplified by the decisions of the Interstate Commerce Commission and the courts; state and federal regulation, with comparison of policies in foreign countries. Prerequisite or concurrent, course 1. Given in alternate years. *Three hours a week. Second semester.* Professor Wiest.

104. PUBLIC FINANCE. A study of public receipts; public expenditures; the principles of taxation with special reference to their application to the tax systems, federal and state. Attention will be given to the current problems in taxation. Prerequisite, course 1. *Three hours a week. First semester.* Professor Leland.

105. MONEY AND BANKING. Nature and functions of money; the importance of credit; relation of money and credit to prices; bank deposits and loans; complete study of our national banking system and comparison with those of foreign countries. Prerequisite, course 1. *Three hours a week. Second semester.* Professor Wiest.

106a. ADVANCED ACCOUNTING. Corporation accounting, cost accounting, municipal accounting and auditing. Prerequisites, courses 7a, 7b and 117. *First semester.* Professor Dickerson.

106b. ADVANCED ACCOUNTING. *Second semester.* Professor Dickerson.

107. STATISTICAL METHOD. Training in the process of treating multiple phenomena with mathematical exactitude. The methods are illustrated with material from the fields of psychology, education, economics and sociology. An essential course for specialists in these fields. Not open to freshmen. *Three hours a week. First semester.* Assistant Professor Palmer.

108. INSURANCE. Fundamental aspects of insurance; principles and their main application; nature of the contract; policies and premiums; life, casualty, health, fire, marine and other hazards. Prerequisite or concurrent, course 1 and Mathematics 14. *Three hours a week. Second semester.* Assistant Professor Palmer.

109a. BUSINESS LAW. A course designed to fill the need for an elementary training in business law. It includes a survey of the principles of contracts, sales, bills and notes, and that portion of the law of

torts applicable to business practices. Not open to freshmen. *Three hours a week. First semester.* Professor Leland.

109b. BUSINESS LAW. Continuation of 109a. *Three hours a week. Second semester.* Professor Leland.

110. BUSINESS CYCLES. In this course a study is made of the nature and characteristics of the economic factors which underlie the cyclical fluctations in business conditions. Attention is also directed toward the methods of business and investment forecasting and their practical application. Prerequisites, courses 1 and 107. *Three hours a week. Second semester.* Assistant Professor Palmer.

111. PRODUCTION AND MARKETING. A functional study of the market organization with special emphasis on the marketing of manufactured products. Considerable time is given to the discussion of retail types such as the general store, chain store, department store and mail order house. Special attention is devoted to market finance, market risk, market news, competition and prices, market price, price maintenance, unfair competition and the cost of marketing. *Three hours a week. Second semester.* Associate Professor McIntyre.

112a. INDIVIDUAL WORK IN ECONOMICS. In this course a selected group of advanced students who have at least a standing of 2 are given special problems for intensive investigation. The student is expected to do more work than the usual amount required per credit hour. Each student makes reports of his studies to the class which is conducted on a seminar basis. Prerequisite, course 1. *Two hours a week. First semester.* Professor Wiest.

112b. INDIVIDUAL WORK IN ECONOMICS. Continuation of 112a. *Two hours a week. Second semester.* Professor Wiest.

113. AUDITING. This course is designed especially for those who expect to enter the accounting profession. Emphasis is placed on the theory of auditing, the valuation of assets, analysis of accounting procedure, and the presentation of statements. Special problems applicable to particular businesses will also be presented. Prerequisites, courses 7a and 7b. *Three hours a week. Second semester.* Professor Taylor.

114. SALESMANSHIP. Among the problems considered are the formulation of selling policies, the actual selling process, the creation of effective demand, sales campaigns, selecting and training salesmen and kindred subjects. Prerequisite 1a and nine hours of Advanced Commerce, including 111. *Three hours a week. First semester.* Associate Professor McIntyre.

115. CONTEMPORARY ECONOMIC THOUGHT. A survey of current literature of theoretical economics. Special emphasis is placed on theories of value and distribution. Prerequisite, course 1. *Three hours a week. First semester.* Professors Wiest, Leland and Jennings.

116. BUSINESS ORGANIZATION. A study of business organization primarily from a social point of view. The course traces the origin and development of forms of business organization; treats the advantages and disadvantages of various forms; includes a study of the trust or combination movement and its effects upon society. Prerequisite or concurrent, course 1. *Three hours a week. Second semester.* Associate Professor McIntyre.

117. CORPORATION FINANCE. A study of the corporation primarily from the internal point of view. The course treats stocks and bonds; develops sound fiscal principles concerning the issues of securities, the management of the corporate income, the disbursement of dividends, the creation of sinking funds; and discusses reorganization procedure. Prerequisites, courses 1 and 116. *Three hours a week. First semester.* Professor Wiest.

118. COST ACCOUNTING. This course deals with the place of cost accounting in the general field of accounting. Special records and cost statistics are considered. Application to particular businesses are made. Prerequisites, courses 7a and 7b. *Three hours a week. First semester.* Professor Dickerson.

119. PRINCIPLES OF RETAILING. This course deals with the fundamental problems of the retail merchant. Among the topics considered are factors of selecting a business location, internal layout, departmentalization, merchandising control, store policies toward the public, training and management of personnel, and related subjects. Prerequisites courses 1a, 111 and consent of instructor. *Two hours a week. Second semester.* Associate Professor McIntyre.

120. COMMERCIAL AND AGRICULTURAL ORGANIZATION. This course presents a survey of economic groups and deals with their economic and social relationships. It also analyzes the business organization aspects of farmers' organizations, chambers of commerce, trade and industrial associations. Prerequisite or concurrent, course 1. *Three hours a week. Second semester.* Professors Wiest and Dickerson.

124. FEDERAL AND STATE TAXATION. An advanced course in public finance which deals with important theoretical issues and current problems in federal and state taxation. Attention is given to such matters as the income, inheritance gift and excise taxes in the field of federal taxation. The classified property tax, the separation of sources of state and local revenue, the taxation of mines, forests and other natural resources, highway finance and similar problems are studied in relation to state taxation. Prerequisites, Commerce 1a and 104. *Three hours a week. Second semester.* Professor Leland

125. ADVANCED ECONOMIC HISTORY OF EUROPE. This course is intended to serve as an economic background for students interested in

European affairs. It discusses population, immigration, labor, agriculture, industry, and finance and the effects of the various lines of development upon national life. Open to juniors, seniors and graduates. *Three hours a week. First semester.* Professor Jennings.

126. ECONOMICS OF PUBLIC UTILITIES. The following topics are discussed in this course; growth and development of public utilities; valuation; rate-making; financing; the holding cvompany; regulation; current problems; accounting. Prerequisite, Commerce 1a. *Three hours a week. First semester.* Professor Dickerson.

127. INTERNATIONAL ECONOMIC POLICIES. Among the topics to be discussed in this course are the following: medieval notions concerning trade; modern fallacies respecting foreign trade; free trade; protectionism; preferential tariffs; colonial tariff policies; dumping; commercial treaties; international patent control; encouragement of foreign shipping; international investments and the movement of capital; international debts; reparations. Special emphasis will be placed on current international economic problems. *Three hours a week. Second semester.* Offered in alternate years. Professor Leland.

128. FOREIGN EXCHANGE. This course aims at an explanation of the theory and practice of foreign exchange. Topics discussed will include inter-bank relations, the exchange market, supply and demand for foreign exchange, types of foreign bills, the rate of exchange, international gold movements, dollar exchange, settlements without use of foreign exchange, investment and speculation in exchange, and disturbances due to World War. *Two hours a week. First semester.* Assistant Professor Palmer.

129. CREDITS AND COLLECTIONS. This course includes the theory of credit; forms of credit; classes of credit and credit machinery; duties and qualifications of a credit man; elements determining the credit risk; sources of credit information; analysis of the financial statement; collections; legal remedies of the creditor and credit safeguards. *Two hours a week. First semester.* Associate Professor McIntyre.

130. LABOR LEGISLATION. The increasing complexity of the problems of labor makes necessary a more detailed examination into the nature and principles of labor legislation than is possible in a general course such as Commerce 102. Emphasis is placed upon the nature and extent of the problem which given legislation seeks to solve rather than upon the technique or application of legislative methods. The following topics, among others, are discussed in this course: the status of labor law, mediation, conciliation, arbitration, the minimum wage, the eight-hour day, unemployment relief, safety and health legislation,

and social insurance. Prerequisite, Commerce 102. *Three hours a week. Second semester*. Assistant Professor Palmer.

131. INVESTMENTS. The aims of this course is to give the student a general understanding of the field of investments. Emphasis is placed upon problems which face the investor rather than the seller of securities. Topics discussed in this course include the following: analysis of corporation statements for investment purposes; the security market; market influences on security prices; effect of interest changes on security prices; analysis of specific types of investments; and the development of investment programs. *Two hours a week. Second semester*. Offered in alternate years. Assistant Professor Palmer.

132a. C. P. A. PROBLEMS. This course is designed primarily for those intending to write on C. P. A. examinations. It is entirely a problem course with class discussion centering about the advanced points of accounting theory illustrated in the problems. Among the points covered are: 1. Application of Funds Statement. 2. Balance Sheet Criticism. 3. Bank Accounts. 4. Branch Accounts. 5. Burglary and Fire Loss. 6. Club Accounts. 7. Comparative Statements. 8. Consolidated Statements. 9. Construction Accounts. 10. Contractors' Accounts. 11. Estate Accounts. 12. Executors' Accounts. 13. Fraud. 14. Goodwill. 15. Institutional Accounts. 16. Municipal Accounts. 17. Professional Accounts. 18. Railroad Accounts. 19. Real Estate Accounts. 20. Realization and Liquidation. 21. Reserves. 22. Sinking Funds. 23. Statement of Affairs and Deficiency Account. 24. Trustee Accounts. 25. Valuation of Assets. 26. Working Capital, et cetera. Prerequisites, Commerce 106a and 106b. *Three hours a week. First semester*. Professor Dickerson.

132b. C. P. A. PROBLEMS. Continuation of 132a. *Three hours a week. Second semester*. Professor Taylor.

133. INCOME TAX PROCEDURE. This course consists wholly of preparing income tax returns for individuals and corporations of all classes and a practical application of principles of accounting. The returns prepared cover such points as: 1. Rates of tax. 2. Exemptions and credits. 3. What included and what excluded from gross income. 4. Deductions allowed. 5. Deductions not allowed. 6. Partnership returns. 7. Returns of estates and trusts. 8. Administrative provisions. 9. Definitions and general provisions. Prerequisites, Commerce 106a and 106b. *Three hours a week. Second semester*. Professor Dickerson.

134. ADVANCED ECONOMIC HISTORY OF THE UNITED STATES. This course is intended primarily as an economic background for social science students. It studies English colonial policy, population growth, immigration, territorial expansion, agriculture, manufactures, tariff, labor, industrial combinations, commerce, transportation facilities, money and banking, and conservation. Not open to freshmen and

sophomores nor to students who had course 3 except by special permission of instructor. *Three hours a week. Second semester.* Professor Jennings.

202a. Seminar. An extended original investigation of some specific topic with a view to giving training in methods of research and studying intensively a particular subject in the field of economics. Weekly reports will be submitted at hours to be arranged. *First semester.* Professors Wiest, Leland and Jennings.

202b. Seminar. Continuation of 202a. *Second semester.* Professors Wiest, Leland and Jennings.

203. History of Economic Thought. This course is a survey of the history of economic thought from the ancient period to the present. The relation of economic theory to general philosophic thought is noted. A more or less intensive study of capital, value and distribution, is made beginning with the Classical School and carried forward to the more recent writers. Prerequisite, course 1. *Three hours a week. Second semester.* Professors Wiest and Leland.

204. Economic History of the United States Prior to 1860. This course is offered exclusively for graduate students. An examination of original sources and class reports will be required. An intensive investigation of all the subjects in detail prior to 1860 will be made. Not open to students who had course 134 except by special permission of instructor. *Two hours a week. First semester.* Professor Jennings.

205. Economic History of the United States Since 1860. This course is a continuation of course 204, but may be taken independently. Not open to students who had course 134 except by special permission of instructor. *Two hours a week. Second semester.* Professor Jennings.

COLLEGE OF EDUCATION
WILLIAM S. TAYLOR, Ph. D., Dean

AGRICULTURAL EDUCATION

180. METHODS OF TEACHING VOCATIONAL AGRICULTURE. A course for teachers and prospective teachers of vocational agriculture. The course deals with the nature and purpose of vocational education in agriculture, the selection and organization of teaching content, the application of suitable methods of teaching to the various courses and subjects in vocational agriculture. Part-time courses for adults and for young men who have dropped out of school prematurely are also treated. *Three credits*. Mr. Carsie Hammonds.

183. RURAL SCHOOL PROBLEMS. Designed particularly to meet the needs of those preparing for the combination position of principal and agriculture teacher. Problems of organization, management curriculum adjustments, teaching personnel, buildings, and grounds, equipment and school finances studied in specific applications. Emphasis placed on proper relation of school and agriculture teacher to extension workers and their programs, farmers' organizations and their programs, and how to conduct school and community affairs. *Three credits*. Dr. Jesse E. Adams.

184. COMMUNITY STUDIES AND THEIR APPLICATION. The aim is to encourage extramural contacts for the teacher in the rural community. Careful study made of the social, economic and other factors affecting rural life and welfare. *Two credits*. Dr. Jesse E. Adams.

EDUCATIONAL ADMINISTRATION AND SUPERVISION

108. PUBLIC EDUCATION IN THE UNITED STATES. An intensive study of educational problems in Kentucky and a comparative study of Kentucky's school laws, regulations, and decisions with those of other states. *Three credits*. Mr. Wellington Patrick.

113. STATE AND COUNTY SCHOOL ADMINISTRATION. The tendencies toward centralization in state and county administration will be analyzed and evaluated. A study of the county is made with particular reference to its operation in Kentucky. *Three credits*. Dr. Jesse E. Adams.

115. ADMINISTRATION AND SUPERVISION. A general course in school administration in smaller cities. Principles of constructive supervision developed. *Three credits*. Professor Floyd W. Reeves.

125. THE SUPERVISION OF ELEMENTARY INSTRUCTION. Designed especially for teachers who are preparing for work in supervision and for supervisors and principals who are interested in a more thorough understanding of the fundamental principles that underlie the super-

vision of instruction in the elementary schools. *Three credits*. Professor L. B. McMullen.

126. THE JUNIOR HIGH SCHOOL. Designed to give to school administrators in general the plans underlying junior high school organization, the development of junior high schools in the United States and their place in the public school program of the state. *Three credits*. Professor Floyd W. Reeves.

131. FINANCING PUBLIC EDUCATION. A critical study of the costs of education and of methods for providing funds to meet these costs. *Three credits*. Professor Floyd W. Reeves.

132. HIGH SCHOOL ADMINISTRATION. A course in the organization and management of high schools, with particular reference to Kentucky high schools. *Three credits*. Professor M. E. Ligon.

151. NORMAL SCHOOL PROBLEMS. A discussion of the modern development of the normal school; a comparison of the methods of different states; the relation of the training school to the academic department with special emphasis upon the problems of the critic teacher. *Three recitation periods per week. Three credits*.

EDUCATIONAL PSYCHOLOGY

119. FOUNDATIONS OF ELEMENTARY INSTRUCTION. A detailed study of the reaction of children to the subject matter of elementary education. *Three credits*. Professor L. B. McMullen.

122. EDUCATIONAL TESTS AND MEASUREMENTS. A course in the theory and practice of measuring educational problems and processes. *Three credits*. Professor Floyd W. Reeves.

123. STATISTICAL METHODS IN EDUCATION. A course in statistics. This is a course that deals with statistics in their relation to education. Designed primarily to aid students in statistical procedure in education. *Three credits*. Professor Floyd W. Reeves.

140. PHILOSOPHY OF EDUCATION. A study of the philosophical writings of modern educational philosophers. *Three credits*. Professor L. B. McMullen.

152. INDEPENDENT WORK IN EDUCATIONAL PSYCHOLOGY. The course attempts a somewhat critical consideration of such problems as learning, motivation, individual differences, etc. It involves reports, discussions, survey of current literature and the like. Prerequisites, senior standing and fifteen hours in education including educational psychology. *Three credits*.

HISTORY AND PHILOSOPHY OF EDUCATION

110. MORAL AND ESTHETIC EDUCATION. An attempt is made in this course to familiarize the teachers through lectures and stereopticon

slides with the various types of architecture and schools of sculpture and painting. It is a course in appreciation of art for others. *Three credits.* Professor J. T. C. Noe.

117a. HISTORY OF EDUCATION. This course is a survey of the history of education from Greece to the beginning of education in America. *Three credits.* Professor J. T. C. Noe.

117b. HISTORY OF EDUCATION. A continuation of 117a. *Three credits.* Professor J. T. C. Noe.

120. GREAT EDUCATORS AND THEIR WORK. A study of the lives and writings of the world's educators to enable the student to appreciate more fully the ideals, attitudes and contributions to society of the men and women in education who have served best. *Three credits.* Professor J. T. C. Noe.

121. HISTORY OF EDUCATION IN THE UNITED STATES. A course in the history of the development of the public school system in the United States. It is designed to give a background for the appreciation of the aims and purposes of modern public education. *Three credits.* Professor J. T. C. Noe.

220. COMPARATIVE EDUCATION. A course giving comparisons of systems of education. *Three credits.* Professor J. T. C. Noe.

HOME ECONOMICS EDUCATION

160. THE TECHNIQUE OF TEACHING HOME ECONOMICS. *Three credits.* Miss Julia Hurd.

163. CURRENT PROBLEMS OF HOME MAKING EDUCATION. A study of aims based on the needs and interests of girls in different types of schools; recent developments in home economics education; the relation of the home economics teacher and department to the rest of the school; coordination with the home; community activities contributing to home making instruction; publicity and promotional work. *Three credits.* Miss Julia Hurd.

165. PROBLEMS IN VOCATIONAL HOME ECONOMICS EDUCATION. A professional course dealing with aims, methods and contemporary secondary educational theories and practices. Designed for those already engaged in teaching home economics. *Three credits.* Miss Julia Hurd.

166. SEMINAR IN HOME ECONOMICS EDUCATION. Work on special problems in home economics education. *Two recitation periods per week. Two credits.*

INDUSTRIAL EDUCATION

170. THE PART-TIME GENERAL CONTINUATION SCHOOL. This is a course designed to meet the needs of teachers and administrators of part-time legislation. It includes the supplying of proper content, a

discussion of methods and instructional management, and the finding of the auxiliary agencies essential to the teaching of part-time classes in urban school systems. *Three credits*. Professor A. N. May.

171. VOCATIONAL EDUCATION. (Information course.) Designed to inform students, teachers, administrators, welfare workers and laymen in general of the vocational education movement in our country and abroad. *Three credits*. Professor A. N. May.

PRINCIPLES AND PRACTICES OF EDUCATION

105. THE TECHNIQUE OF TEACHING. This course deals with methods of teaching in the high school. Motivation and the project method will be given special attention. *Three credits*. Professor M. E. Ligon.

106. OBSERVATION AND PRACTICE TEACHING. Practice work in the training school.

114a. EDUCATIONAL SOCIOLOGY. A study of the development of the social mind with special reference to education. *Two credits*. Professor W. S. Taylor.

114b. EDUCATIONAL SOCIOLOGY. A continuation of 114a. *Two credits*. Professor W. S. Taylor.

127. PROBLEMS IN CURRICULUM BUILDING. A critical study of the content of the curriculum and of the principles which should guide us in curriculum building. *Three credits*. Professor W. S. Taylor.

128. PRINCIPLES OF METHODS. This course deals with the development and formulation of the fundamental principles of teaching based upon the psychology of the learning process and upon the more recent developments in the theories of education relative to the function of the school. *Three credits*. Professor M. E. Ligon.

129. THE TEACHING OF HIGH SCHOOL MATHEMATICS. A study of the objectives of high school mathematics; the course and content of each; the adjustment of mathematics courses to high schools of different sizes and high schools operating under the different social conditions; a careful study of methods and materials used in teaching mathematics. *Two credits*. Miss Mary Beall.

134. ENGLISH IN THE HIGH SCHOOL. A study of the teaching of English. *Two credits*. Miss Grace Anderson.

135. SOCIAL SCIENCES IN THE HIGH SCHOOL. A study of the teaching of the social sciences. *Two credits*. Miss Anna Peck.

136. BIOLOGICAL SCIENCES IN THE HIGH SCHOOL. A study of the teaching of the biological sciences on the secondary level. *Two credits*. Mr. A. B. Crawford.

137. PHYSICAL SCIENCES IN THE HIGH SCHOOL. A study of the teaching of the physical sciences on the secondary level. *Two credits*. Mr. A. B. Crawford.

138. LATIN IN THE HIGH SCHOOL. A study of the teaching of Latin on the secondary level. *Two credits.* Miss Mary West.

139. FRENCH IN THE HIGH SCHOOL. A study of the teaching of French on the secondary level. *Two credits.* Miss Mary West.

150. THE SENIOR HIGH SCHOOL. This course is designed to give to school administrators and to instructors who plan to be high school principals a knowledge of the organization of the senior high school, the problems that arise in its administration, with particular emphasis upon such problems as the purpose of the school room, extra curricular activities of high school instruction. *Three credits. Three recitation periods per week.*

ADMINISTRATION AND SUPERVISION

125. SUPERVISION OF ELEMENTARY INSTRUCTION. Designed especially for teachers who are preparing for work in supervision or who desire a better understanding of the relationship between teacher and supervisor, and for principals and supervisors who are interested in a more thorough understanding of the fundamental principles that underlie the supervision of instruction in the elementary schools. *Three credits.* Professor L. B. McMullen.

126. THE JUNIOR HIGH SCHOOL. Course designed to give to school administrators in general the plans underlying junior high school organization, the development of junior high schools in the United States and their place in the public school program of the state. *Three credits.*

142. ADMINISTRATION AND SUPERVISION OF VILLAGE AND CONSOLIDATED SCHOOL. A course dealing with administrative problems as related to small school units.

143. COUNTY SCHOOL ADMINISTRATION. This course deals with the problems of the school administrator and is especially designed from the viewpoint of the county superintendent. *Three credits.* Professor J. E. Adams.

144. THE RURAL HIGH SCHOOL. Its organization and curriculum. Discusses (1) the most efficient types of organization for rural high schools and (2) curriculum building in the rural high school. *Three credits.* Professor J. E. Adams.

145. RURAL SCHOOL SUPERVISION. Work in this course is taken up from the viewpoint of the supervisor in the rural field. *Three credits.* Professor J. E. Adams.

146. SCHOOL BUILDINGS AND EQUIPMENT. A study of modern standards for school buildings and their equipment; actual scoring of buildings done. *Two credits.* Professor L. B. McMullen.

147. KENTUCKY SCHOOL LAW. *Two credits.* Professor F. W. Reeves.

222. THESIS COURSE. A course for graduate students who are writing theses. Professor W. S. Taylor.

COLLEGE OF ENGINEERING
F. PAUL ANDERSON, M. E., Dean

CIVIL ENGINEERING

Prerequisites for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics. These courses are offered to graduates and to such practicing engineers as may be qualified to pursue them. For major work, a candidate must hold a baccalaureate degree in civil engineeirng.

201. CONSTRUCTION. Advanced work in plant and reinforced concrete. Lectures, recitations, reading, report writing and designing. *Twenty hours a week. Throughout the year.* Professor Terrell.

231. HIGHWAY ENGINEERING. Advanced courses, designed for graduate civil engineers who wish to enter the field of highway engineering. Lectures, recitations, reading, laboratory work and design. *Twenty-four hours a week. Throughout the year.* Professor Terrell.

241. RAILROAD ENGINEERING. Advanced work in location, construction and maintenance. Lectures, recitations, reading and report writing. *Fifteen hours a week. Throughout the year.* Associate Professor Newman.

251. SANITARY ENGINEERING. Advanced work in sewer systems and disposal plants. (Course in water analysis, sewage analysis and bacteriology should be taken in connection with this course.) Lectures, recitations, reading, report writing, design and laboratory work. *Twenty hours a week. Throughout the year.* Professor Terrell.

271. STRUCTURAL ENGINEERING. Advanced work in theory of structures. Detail drawing, lectures, recitations, report writing. *Eighteen hours a week. Throughout the year.* Professor Carrel.

ELECTRICAL ENGINEERING

201a. ADVANCED ALTERNATING CURRENTS. *Lectures and recitations five hours, laboratory ten hours, and drawing ten hours a week. First semester.* Professor Freeman.

201b. ADVANCED ALTERNATING CURRENTS. A continuation of course 201a. *Lectures and recitations five hours, laboratory ten hours, and drawing ten hours a week. Second semester.* Professor Freeman.

202. TELEPHONE ENGINEERING. *Lectures and recitations five hours, laboratory ten hours, and drawing ten hours a week. First semester.* Professor Freeman.

203. ILLUMINATION. *Lectures and recitations five hours, laboratory ten hours, and drawing ten hours a week. Second semester.* Professor Freeman.

MECHANICAL ENGINEERING

201a. AUTOMOTIVE ENGINEERING. *Recitations five hours a week, design ten hours a week, and laboratory fifteen hours a week. First semester.* Professor C. H. Anderson.

201b. AUTOMOTIVE ENGINEERING. A continuation of 201a. *Recitations five hours a week, design ten hours a week, and laboratory fifteen hours a week. Second semester.* Professor C. H. Anderson.

202a. POWER PLANTS. *Recitations five hours a week, design fifteen hours a week. First semester.* Dean Anderson, Assistant Professor O'Bannon.

202b. POWER PLANTS. A continuation of 202a. *Recitations five hours a week, design fifteen hours a week. Second semester.* Dean Anderson, Assistant Professor O'Bannon.

203a. HEATING AND VENTILATION. *Recitations five hours a week, design twenty hours a week. First semester.* Dean Anderson, Assistant Professor O'Bannon.

203b. HEATING AND VENTILATION. A continuation of 203a. *Recitations five hours a week, design twenty hours a week. Second semester.* Dean Anderson, Assistant Professor O'Bannon.

MINING ENGINEERING

201. CADASTRAL ENGINEERING. This course includes surveys for connecting underground deposits with surface features in mineral areas, such as party lines, buildings, streams, deep ravines and gulches, bases on coreholes and outcrops; also the determination of surface contours for use in calculating mineral tonnages, the survey of boreholes put down for locating the position, thickness, and outline at depth of dipping vein deposits; and the magnetic contour maps of iron deposits. *Recitations two hours a week, drawing and field work four hours a week. First semester.* Professor Barr.

202. MINE MODELS. This consists in the making of glass models of underground metal mines, consisting of a series of glass sheets, corresponding to the mine levels, on which is delineated the figure, course and width of the deposit at each level, the amount of stoped ground, the extent of the level, and any faults or "slides" that may have been encountered. *Recitations one hour a week, laboratory eight hours a week.* Professor Barr.

203. MINE ORGANIZATION AND OPERATION. This course includes a study of mining investments, management, operations, costs, amortization and welfare department. *Recitations three hours a week.* Professor Barr.

204. AN ADVANCED COURSE IN MINE VENTILATION. A study of special problems pertaining to coal and metal mine ventilation and

the design and installation of fans for primary and secondary sys-
tems. Prerequisites, Mining 6 and 11. *Recitations two hours a week,
design four hours a week.* Professor Barr.

205. AN ADVANCED COURSE IN NON-METALLIC MINING. This course
includes a study in the preparation of reports and description of prop-
erties, the acquiring of titles and mining rights, the forms of leases
and options, the layout and development of surface and subterraneous
system of non-metallic mines, including coal, shale, clay, stone, sulphur,
salt, etc., and the utilization of mine waste in the manufacture of clay
products and building material. Special problems in the design and
layout of systems adapted to mechanical loading and transportation,
with a study of the machines involved are considered. Prerequisites,
Mining 6 and 8. *Recitations three hours a week, design six hours a
week.* Professor Barr.

206. EXPLOSIVE ENGINEERING. This is an advanced course in ex-
plosives and blasting, given especially to meet the increasing demands
for men trained in this particular branch of engineering. It includes a
comprehensive study of various types of explosives and their uses,
methods of blasting under various conditions and the calculation of
charges. Prerequisite, Mining 11. *Recitations two hours a week.* Pro-
fessor Barr.

METALLURGICAL ENGINEERING

101. ELEMENTS OF OIL SHALE ENGINEERING. A general course
covering the history, present development and probable future of the
oil shale industry both in the United States and abroad with a general
discussion of the problems encountered in the production of oil from
shale. Prerequisites, Physics 3a, 3b, Chemistry 10. *Lectures and quizzes
two hours a week.* Professor Crouse.

105. ADVANCED METALLURGY OF IRON AND STEEL. This is an ad-
vanced course in ferrous metallurgy considered from the standpoint
of metallurgical calculations. It includes a study of the various changes
used in the manufacture of iron and steel together with a detailed
study of the processes involved. Heat balances in the various furnaces
used both in the manufacture of iron and steel, and also in the heat
treatment of steel are likewise considered. Prerequisites, Physics 3a,
3b, Chemistry 10, Metallurgy 4, and Metallurgy 114. *Lectures, recita-
tions and problems five hours a week. First half of second semester.*
Professor Crouse.

113. HEAT TREATMENT AND PYROMETRY. This course includes a
practical study of the heat treatment of both carbon and alloy steel with
an investigation, by physical testing and by microscopical examination
of the effects obtained. Consideration is also given to the methods of

recording high temperatures and the making of micro photographs. Prerequisites, Physics 3a, 3b, Metallurgy 4. Metallurgy 21 either should have been completed or be taken at the same time. *Laboratory four hours a week. First half of second semester.* Professor Crouse.

114. METALLURGIAL CALCULATIONS. This is a comprehensive course dealing with the calculations necessary in the quantitative working of any metallurgical process of furnace. It includes combustion calculations of all kinds, furnace efficiencies, chimney draft, heat balances, electric furnace work, and complete furnace charge calculations for the various metals. Prerequisites, Physics 3a, 3b, Chemistry 10, Metallurgy 4 and Metallurgy 10. *Lectures, recitations and problems three hours a week. First semester.* Professor Crouse.

201. HEAT TREATMENT OF STEEL. This course includes a detailed study of the apparatus and processes used in the heat treatment of steel including a consideration of heat treating furnaces, the determination and recording of high temperatures, quenching mediums and case hardening together with a study of the effects of these processes on various steels. Prerequisites, Metallurgy 4, 21 and 113. *Lectures and quizzes three hours a week.* Professor Crouse.

202. LABORATORY WORK ON THE HEAT TREATMENT OF STEEL. This course comprises the practical application of the work given in Metallurgy 201, including microscopical examination and the taking of micro photographs. Prerequisite, Metallurgy 201. *Laboratory eight hours a week.* Professor Crouse.

203. OIL SHALE TECHNOLOGY. This course embodies all phases of the problem of the production of oil from shales with particular reference to the shales of Kentucky. Prerequisites, Chemistry 10, Physics 3a and 3b. It would also be desirable to have some knowledge of physical and organic chemistry. *Lectures and recitations three hours a week.* Professor Crouse.

204. LABORATORY WORK IN OIL SHALE TECHNOLOGY. This course comprises a practical application of the principles taught in Metallurgy 203 and includes work in the testing of shales for oil and by-products and experimental work in the eduction of oil from shale under different conditions of temperature, pressure and steam, with allied problems. Prerequisite, Metallurgy 202. *Laboratory twelve hours a week.* Professor Crouse.

COLLEGE OF LAW

CHARLES J. TURCK, A. M., LL. B., Dean

The following courses in the College of Law are accepted as gradu-
ate work when taken by students majoring in Political Science, Eco-
nomics, Sociology, Commerce or other fields in which such courses are
recommended by the major professors:

101a-101b. CONTRACTS. Huffcut and Woodruff's Cases on Contracts.
Three hours a week. First and second semesters. Professor Turck.

102a-102b. TORTS. Hepburn's Cases on Torts. *Three hours a week.
First and second semesters.* Professor Scarborough.

103. COMMON LAW AND STATUTE LAW OF KENTUCKY. Selected
cases. *Three hours a week. First semester.* Professor Chalkley.

104a. PROPERTY I (Personal Property). Warren's Cases on Prop-
erty. *Two hours a week. First semester.* Professor Moreland.

104b. PROPERTY II (Elements of Real Property). Warren's Cases
on Property. *Two hours a week. Second semester.* Professor Roberts.

105. AGENCY. Wambaugh's Cases on Agency. *Two hours a week.
Second semester.* Professor Chalkley.

106. COMMON LAW PLEADING. Whittier's Cases on Common Law
Pleading. *Two hours a week. First semester.* Professor Chalkley.

107. CRIMINAL LAW. Beale's Cases on Criminal Law. *Three hours
a week. Second semester.* Professor Turck.

120a-120b. CIVIL PROCEDURE I AND II. Scott's Cases on Civil Pro-
cedure. *Three hours a week. First and second semesters.* Professor
Chalkley.

121a-121b. EQUITY I AND II. Cook's Cases on Equity. *Three hours
a week. First and second semesters.* Professor Moreland.

122. PROPERTY III (Titles). Warren's Cases on Conveyances.
Three hours a week. First semester. Professor Roberts.

123. NEGOTIABLE INSTRUMENTS. Smith and Moore's Cases on
Negotiable Instruments. *Three hours a week. Second semester.* Pro-
fessor Scarborough.

124. EVIDENCE. Hinton's Cases on Evidence. *Two hours a week.
First and second semesters.* Professor Turck.

125. PRACTICE COURT. *One hour a week. First and second semes-
ters.* Professor Chalkley.

160. PRIVATE CORPORATIONS. Richard's Cases on Corporations.
Four hours a week. First semester. Professor Scarborough.

161. CONSTITUTIONAL LAW. Hall's Cases on Constitutional Law.
Three hours a week. Second semester. Professor Chalkley.

162. PROPERTY. IV (Future Interests). Kales' Cases on Future
Interests. *Three hours a week. First semester.* Professor Roberts.

163. WILLS AND ADMINISTRATION. Warren's Cases on Wills and Administration. *Three hours a week. First semester.* Professor Turck.

164. CONFLICT OF LAWS. Tumble's Cases on Conflict of Laws. *Three hours a week. Second semester.* Professor Scarborough.

165. TRUSTS. Scott's Cases on Trusts. *Three hours a week. Second semester.* Professor Roberts.

166. SALES. Williston's Cases on Sales. *Three hours a week. Second semester.* Professor Moreland.

167. PRACTICE COURT. *One hour a week. First and second semesters.* Professor Chalkley.

ELECTIVE SUBJECTS OPEN TO SECOND AND THIRD YEAR STUDENTS

140. INTERNATIONAL LAW. *Two hours a week. Second semester.* President McVey.

141. PARTNERSHIP. Mechem's Cases on Partnership. *Two hours a week. Second semester.* Professor Scarborough.

142. WORKMEN'S COMPENSATION. Cases on Workmen's Compensation. *Two hours a week. First semester.* Professor Scarborough.

143. MORTGAGES. Cases on Mortgages. *Three hours a week. First semester.* Professor Moreland.

144. LEGAL RESEARCHES. Selected cases. *Two hours a week. First semester.* Professor Scarborough.

145. INSURANCE. Woodruff's Cases on Insurance. *Two hours a week. Second semester.* Professor Moreland.

146. BANKRUPTCY AND FEDERAL PROCEDURE. Case book to be selected. *Two hours a week. Second semester.* Professor Roberts.

147. EQUITY III (Including Quasi Contracts). Cook's Cases on Equity. *Two hours a week. Second semester.* Professor Turck.

148. DOMESTIC RELATIONS. Kales' Cases on Domestic Relations. *Three hours a week. First semester.* Professor Moreland.

149. MUNICIPAL CORPORATIONS. Macy's Cases on Municipal Corporations. *Three hours a week. Second semester.* Professor Scarborough.

150. PUBLIC UTILITIES. Burdick's Cases on Public Utilities. *Two hours a week. Second semester.* Professor Turck.

GRADUATE STUDENTS
FELLOWS
Julia P. Brunson..Rock Hill, S. C.
R. K. Flege ....Williamstown
D. Y. Dunn ....Dexter
J. W. Holland ....Fordsville

SCHOLARS
Joe Lee Davis ....Lexington
Helene K. Davis...Paris
Ellery L. Hall..Maysville
L. G. McCraw ....Clemson, S. C.
D. H. Mahoney ....Lexington
Ruth Melcher ....Lexington
J. I. Owen ....Gilbertsville
Frances N. Roberts ....Lexington
C. H. Rogers ....Mullins, S. C.
W. G. Woolum ....Louisville

OFFICERS OF GRADUATE CLUB
PRESIDENT
E. E. Bratcher...Science Hill

VICE PRESIDENT
L. A. Pardue ....Scottsville

SECRETARY
Lucy A. Young...Lexington

REGISTER OF GRADUATE STUDENTS 1926-27

Name	Major	Address
Addams, Lucy L.	English	Cynthiana, K.y
Akers, L. R.	Education	Wilmore, Ky.
Alexander, Frank O.	Zoology	Paris, Ky.
Allison, A. A.	Education	Erlanger, Ky.
Allison, Nathan	Education	Columbia, Ky.
Ashbrook, Wm. A.	Education	Lexington, Ky.
Backer, Helen	Education	Lexington, Ky.
Bailey, Daniel	Physics,	Olmstead, Ky.
Baird, O. E.	Education	Barlow, Ky.
Ballard, Jennie M.	Home Economics	Lawrenceburg, Ky.
Baker, Grace E.	Education	Lexington, Ky.
Barker, Mrs. Adelaide	History	Wilmore, Ky.
Barker, Earl P.	Ancient Language	Wilmore, Ky.
Baulch, Walter B.	Science	Fulton, Ky.
Beebe, Morris Wilson	Metallurgy	Lexington, Ky.
Belt, Rupert A.	Agronomy	Tolu, Ky.
Bishop, Maryleona	French	Murray, Ky.
Bowen, J. W.	Education	Kenova, W. Va.
Bowlds, Fleming J.	Education	Owensboro, Ky.
Boynton, Paul L.	Psychology	Lexington, Ky.
Brandenburg, Udell	Romance Languages	Lexington, Ky.
Bratcher, E. E.	Education	Science Hill, Ky.
Bronston, Miss Tomie	Mathematics	Lexington, Ky.
Brown, Geo. T.	Education	Rockport, Ky.
Brown, Jno Y.	Political Science	Sturgis, Ky.
Brunson, Julia Porcher	Home Econ.	Florence, S. Carolina
Bryant, G. O.	Education	Richmond, Ky.
Bush, Joe M.	Bacteriology	Mt. Sterling, Ky.
Camp, Louise S.	Home Economics	Lebanon, Ky.
Campbell, G. W.	Education	Corbin, Ky.
Canon, C. T.	Education	Russellville, Ky.
Card, Dana G.	Economics	Lexington, Ky.
Carman, Armiel	Educational Admin.	Lexington, Ky.
Carpenter, D. B.	Education	Burlington, Ky.
Carr, Ophelia S. T.	English	Lexington, Ky.
Cartmell, R. B.	Education	Maysville, Ky.
Case, W. L.	Education	Springfield, Ky.
Cawein, Madison	Physics	Versailles, Ky.
Caywood, C. P.	Education	Barbourville, Ky.
Charles, C. M.	Psychology	Lexington, Ky.
Craig, Sam B.	Psychology	Stanford, Ky.

Name	Major	Address
Clark, Jeff D., Jr.	Education	Lexington, Ky.
Clark, Mary E.	Education	Lexington, Ky.
Clark, Julia	Education	Paris, Ky.
Clifton, Louis	Education	Lexington, Ky.
Cooper, Arthur L.	Zoology	Lexington, Ky.
Cooper, Mary Hester	Mathematics	Lexington, Ky.
Coslow, Wm. F.	Education	Fisherville, Ky.
Cox, Miss Alma	Education	Burgin, Ky.
Cox, Bryant	English	Spurlington, Ky.
Crook, Mary Joe	English	Henderson, Ky.
Crowder, M. H.	Bacteriology	Select, Ky.
Cruickshank, Grace A.	History	Lexington, Ky.
Dabney, Jno. A.	Education	Hopkinsville, Ky.
Darnaby, Ernest H.	Education	Clintonville, Ky.
Darnall, Isabelle	English	Mayslick, Ky.
Davis, E. C., Jr.	History	Cove City, Ky.
Davis, Mrs. Harriet M.	History	Wilmore, Ky.
Davis, Helene K.	Education	Paris, Ky.
Davis, Joe Lee	English	Lexington, Ky.
Derrick, F.	Education	Newport, Ky.
Dixon, J. D.	Education	Clinton, Ky.
Donovan, Leonora	Education	Lexington, Ky.
Dorsey, Miss Adele	Education	Lexington, Ky.
Dotson, J. A.	Education	Benham, Ky.
Dorsey, Stanton L.	Bacteriology	Lexington, Ky.
Dunn, D. Y.	Education	Dexter, Ky.
Elam, James A.	History	Lexington, Ky.
Engle, Fred A.	Education	Lexington, Ky.
Erdman, Mrs. Virginia	Education	Camp Meade, Md.
Eubank, Sallie C.	Education	Winchester, Ky.
Fant, Mrs. Margaret C.	English	Richmond, Ky.
Fencil, Neville	Education	Frankfort, Ky.
Flege, Raymond K.	Chemistry	Williamstown, Ky.
Flora, Gertrude	Botany	Lexington, Ky.
Fossit, F. J., Jr.	Education	Foster, Ky.
Fouch, T. E.	Education	Elliottsville, Ky.
Fraysure, W. H.	Education	Springfield, Ky.
Fremd, Lydia K.	Mathematics	Utica, Ky.
French, J. L.	Education	Utica, Ky.
Gabhard, Miss Nellie	History	Louisville, Ky.
Gallaway, W. F., Jr.	English	Savannah, Ga.
Gary, W. R.	Education	Mackville, Ky.

Name	Major	Address
Gentry, R. S.	Zoology	New Liberty, Ky.
George, Miss Louise	Mathematics	Covington, Ky.
Geurin, F. P.	Education	Murray, Ky.
Gladdin, S. C.	Mathematics	Oxford, Miss.
Glass, Rhoda	English	Lexington, Ky.
Glasgow, A. W.	Education	Vanceburg, Ky.
Glenn, Howard E.	Engineering	Clemson College, S. C.
Gonterman, Wm.	Zoology	Cub Run, Ky.
Gordon, Mary Agnes	Education	Washburn, N. D.
Gormley, Mary C.	Education	Lexington, Ky.
Gotherman, Mrs. Jessie	Education	Lexington, Ky.
Gotherman, Edward Earl	Education	Lexington, Ky.
Gott, Edwin	Bacteriology	Lexington, Ky.
Graddy, Evan Clay	Marketing	Lexington, Ky.
Graham, Vida	Education	Lexington, Ky.
Gray, Cuthbert Merle	Sociology	Lexington, Ky.
Gray, J. W.	Education	Lexington, Ky.
Gregg, S. S.	Engineering	New York, N. Y.
Griffin, Hallie K.	English	Henderson, Ky.
Hahn, Thos. M.	Physics	Lexington, Ky.
Hall, E. L.	History	Mt. Olivet, Ky.
Hamilton, Mrs. M. D.	Education	Mt. Sterling, Ky.
Harris, Chas. Edgar	Marketing	Lexington, Ky.
Harris, Dorothy M.	Mathematics	Springfield, O.
Harris, O. H.	Education	Winchester, Ky.
Harris, Wm. Jefferson	Animal Husbandry	Lexington, Ky.
Hart, B. F.	Biological Sci.	Burning Spring, Ky.
Hart, Mrs. M. C.	Education	Nicholasville, Ky.
Hayes, R. B.	Education	Maysville, Ky.
Hedger, Helen	English	Mt. Sterling, Ky.
Hendrick, Harry E.	Educational Admin.	Smith Grove, Ky.
Henry, Robert Gilbert	Physics	Rock Hills, S. C.
Henry, Miss Nellye	Education	Lexington, Ky.
Herring, Pearl Bastin	Latin	Lexington, Ky.
Hervey, Henry Jacob	Education	Wilmore, Ky.
Hicks, J. R.	Education	Wilmore, Ky.
Hinson, Ellery	History	Frankfort, Ky.
Holbrook, Cain S.	Education	Paris, Ky.
Hooks, N. T.	Education	Lamasco, Ky.
Holland, Jno. W.	Animal Industry	Whitesville, Ky.
Hounchell, H. L.	Education	Bethel, Ky.
Horlacher, L. J.	Psychology	Lexington, Ky.

Name	Major	Address
Hughes, Mrs. Beulah	English	Lexington, Ky.
Hughes, D. S.	Physics	Providence, Ky.
Hull, Floyd E.	Bacteriology	Lexington, Ky.
Irwin, F. M.	Education	Paducah, Ky.
Jaggers, R. F.	Education	Lexington, Ky.
Jennings, R. W.	Commerce	Lexington, Ky.
Jewell, J. W.	Education	Burning Springs, Ky.
Johnson, Arthur G.	Educational Psy.	Winchester, Ky.
Johnson, Mrs. Arthur G.	Home Economics	Winchester, Ky.
Johnson, Elizabeth	Education	Lynch, Ky.
Johnson, E. C.	Economics	Warren, Minn.
Johnson, F. H.	Education	Louisville, Ky.
Johnson, Henry M.	History	La Grange, Ky.
Johnson, Lena O.	Education	Lexington, Ky.
Johnson, Robert F.	English	Flemingsburg, Ky.
Johnson, W. P.	Education	Bagdad, Ky.
Jones, Llewellyn Mae	English	Fulton, Ky.
Jones, Leland T.	Zoology	Radnor, Ohio
Jones, Mary Joe	Education	Lexington, Ky.
Juhl, Erma E.	Psychology	Twin Valley, Minn.
Karr, Miss Alice	Education	Lexington, Ky.
Kavanaugh, Geo. R.	Economics	Blackford, Ky.
Kelley, Virginia D.	Education	Lexington, Ky.
Kidwell, B. T.	Education	Russell, Ky.
Kilpatrick, Elmer J.	Agric. Economics	Lexington, Ky.
Kintner, O. C.	Education	Wilmore, Ky.
Knight, Roy	Education	Pleasureville, Ky.
Lair, Jesseth L.	Education	Hustonville, Ky.
LeMaster, J. P.	Animal Husb.	Campbellsburg, Ky.
Lee, R. G.	English	Frankfort, Ky.
Lewis, Bennett	Education	Winchester, Ky.
Ligon, Margaret	Mathematics	Farmington, Ky.
Link, Harold F.	Agric. Economics	Camp Chase, Ky.
Littell, O. P.	Biological Sci.	Williamstown, Ky.
Lovely, L.	Education	Lexington, Ky.
Luce, Miss Esther	English	Wilmore, Ky.
Luten, Inez Ware	Education	Hickman, Ky.
Lynch, H. W.	Hist. and Pol. Sci.	Georgetown, Ky.
Lyon, Geraldine	English	Lexington, Ky.
Mackey, Mrs. Flora	English	Williamsburg, Ky.
Mahoney, D. H.	Commerce	Lexington, Ky.
Martin, Joseph H.	Animal Industry	Lexington, Ky.

Name	Major	Address
Martin, Mary F.	Hist. and Political Sci.	Fulton, Ky.
Marrs, Virginia H.	Home Economics	Lexington, Ky.
Marshall, Mary Allie	English	Lexington, Ky.
Mastin, Mary Bell	Ancient Language	Versailles, Ky.
Mathews, Paul H.	Education	Lexington, Ky.
Mathews, Ruby	English	Lexington, Ky.
Maxwell, Samuel Arthur	Education	Wilmore, Ky.
McChesney, Hardin Field	Education	Mt. Vernon, Ky.
McClure, Virginia	Education	Lexington, Ky.
McCraw, Leslie Gladstone	Chemistry	Caffney, S. C.
McDowell, Tedd	Political Science	Harlan, Ky.
McGuire, S. H.	Education	Morehead, Ky.
McInteer, B. B.	Botany	Lexington, Ky.
McIntire, Mrs. Maude	English	Lexington, Ky.
McKee, Mrs. Pratt Heden	Education	Mt. Sterling, Ky.
McKinley, Elam	Animal Industry	Lexington, Ky.
McKown, Geo. I. III	Commerce	Lexington, Ky.
McWhorter, Ruby S.	Education	Lexington, Ky.
McMurtry, J. S.	Education	Vine Grove, Ky.
Melcher, Ruth Taylor	Psychology	Lexington, Ky.
Messers, Geo. D.	Economics	Barbourville, Ky.
Meredith, Miles W.	Animal Industry	Bee Spring, Ky.
Meredith, Mrs. Miles W.	Home Economics	Paducah, Ky.
Mills, L. H.	Education	Barbourville, Ky.
Mills, Otto	Education	Lexington, Ky.
Mills, Hubert H.	Education	Bowling Green, Ky.
Mitchell, Americus	Law	Sheffield, Ala.
Moore, Rev. G. E.	Education	Salyersville, Ky.
Moore, W. Jamie	Education	Wilmore, Ky.
Morgan, C. L.	Animal Industry	Serocco, Ky.
Morris, Mrs. Gaile J.	Education	Monticello, Ky.
Morrow, Joseph	Education	Monticello, Ky.
Moss, Mrs. Bradley	Education	Millersburg, Ky.
Murphy, Marion W.	Geology	Lexington, Ky.
Nankwell, J. E.	Education	Becker, Minn.
Newton, Roy	Education	Wilmore, Ky.
Norman, Mary Louise	Education	Lexington, Ky.
Norvell, Miss Lucie	Education	Carlisle, Ky.
Oldham, Morean Browne	Education	Winchester, Ky.
Orman, Bryant G.	Education	Richmond, Ky.
Orman, T. E.	Education	Danville, Ky.
Osborne, Helen Juanita	English	Lexington, Ky.

Name	Major	Address
Owen, Willie B.	Zoology	Gilbertsville, Ky.
Owen, Jno. I.	English	Gilbertsville, Ky.
Pardue, Louis A.	Physics	Scottsville, Ky.
Paris, Mary Gertrude	Education	Fisherville, Ky.
Parrish, Katherine	Education	Lexington, Ky.
Payne, Virgil Frances	Education	Fulton, Ky.
Pearson, Eugene Lewis	English	Richmond, Ky.
Pence, Sallie E.	Mathematics	Lexington, Ky.
Perkins, Albert R.	Education	Rockholds, Ky.
Person, Amy L.	English	Wilmore, Ky.
Pinkerton, Elizabeth	English	Versaille, Ky.
Piper, Lewis A.	Education	Lexington, Ky.
Pirtle, Jno. P.	Agriculture	Elizabethtown, Ky.
Porter, Margaret	English	Ferguson, Ky.
Puckett, H. W.	Education	Owenton, Ky.
Pusye, Ernest N.	Agriculture	Yeaman, Ky.
Puterbaugh, Allen	Education	Arcanum, Ohio
Ragland, Samuel E.	Education	Taylorsville, Ky.
Ramsey, Berthrand P.	Physics	Durham, N. C.
Rankley, Harry R.	Education	Turner's Station, Ky.
Razor, Chas. T.	Physics	Flemingsburg, Ky.
Reed, Katherine	Education	Marion, Ky.
Reed, Mabel H.	History	Carlisle, Ky.
Reilly, Ruth R.	Home Economics	Gilmore City, Mo.
Reynolds, Margaret	Education	Nicholasville, Ky.
Richardson, Ruby A.	History	Berea, Ky.
Richmond, Harry	Education	Cynthiana, Ky.
Rigdon, W. I.	Commerce	Fort Valley, Ga.
Risque, Ida Kenney	History	Midway, Ky.
Roberts, Byron N.	Economics	Paris, Ky.
Roberts, Nan	Hygiene	Lexington, Ky.
Roberts, Neolia Frances	Chemistry	Lexington, Ky.
Robinson, Lewis Cass	Geology	Lexington, Ky.
Roemele, E. C.	Education	Frankfort, Ky.
Roettinger, Ruth L.	Political Science	Wilmore, Ky.
Rogers, Colonel Hoyt	Plant Pathology	Mullins, S. C.
Ross, D. Stanton	Hygiene	Gilford, Maine
Ross, Ray	Education	Mayfield, Ky.
Rouse, Wm. Leonard	Agric. Economics	Cynthiana, Ky.
Rudolph, A. S.	Bacteriology	Little Cypress, Ky.
Russell, Ward	Psychology	Lexington, Ky.
Sancier, W. A.	Education	Upland, Indiana

Name	Major	Address
Scott, Russel Burton	Physics	Ludlow, Ky.
Scott, Frank D.	Education	Carlisle, Ky.
Schackelford, Louis Byron	English	Lexington, Ky.
Shacklette, Rachelle	English	Brandenburg, Ky.
Short, Lupie B.	Sociology	Lexington, Ky.
Shute, Clarence W.	English	Wilmore, Ky.
Sibley, J. B.	Education	Winchester, Ky.
Skinner, Helen H.	Zoology	Arlington, N. J.
Smallwood, Enoch	History	Pikeville, Ky.
Smith, Mrs. Cleo D.	Sociology	Lexington, Ky.
Smith, Jno. R.	Animal Husbandry	Lexington, Ky.
Smith, Jean L.	History	Lexington, Ky.
Smith, Jno. Willis	Education	Cannel City, Ky.
Smoot, Ellen M.	History	Owenton, Ky.
Snapp, Carlos	Education	Barterville, Ky.
Speak, Ida N.	Education	Boxville, Ky.
Spillman, Claude	Animal Industry	Stanford, Ky.
Sporing, T. B.	Education	Louisville, Ky.
Stamler, Jennie L.	English	Lexington, Ky.
Steele, Margaret	Journalism	Muir, Ky.
Stephens, Ada	Ancient Language	Wilmore, Ky.
Stone, Geo.	Vistor	Milburn, Ky.
Streyffeler, Dewitt O.	Mathematics	Le Mars, Iowa
Strother, J. Park	Education	Lexington, Ky.
Summerville, Mildred	English	Marion, Ky.
Tarpley, E. C.	Chemistry	Frankfort, Ky.
Taylor, Lewis Nelson	Education	Lexington, Ky.
Thornberry, H. H.	Plant Pathology	Cougdon, Ky.
Threlkeld, Hilda	English	Lexington, Ky.
Tolar, M. B.	Mathematics	Georgetown, Ky
Tomery, Joe C.	Education	Corydon, Ky.
Tracy, Len	Philosophy	Lexington, Ky.
True, Margaret	Education	Georgetown, Ky
Van Deren, Sarah	English	Cynthiana, Ky.
Vandenbosch, Mary Belle	Law	Lexington, Ky.
Van Meter, Margaret	Education	Lexington, Ky.
Veler, Element D.	Education	Bowling Green, Ky.
Vaughn, Erasmus	Education	Lexington, Ky.
Wadlington, G. G.	Animal Husb.	Dawson Springs, Ky.
Walker, Samuel	Education	Williamsburg, Ky.
Wallis, Elizabeth	Mathematics	Lexington, Ky.
Warner, Hattie C.	Education	Nicholasville, Ky.

Name	Major	Address
Warren, Chas. T.	Commerce	Lexington, Ky.
Watson, Stella Mary	Psychology	Westoff, Texas
Watson, Virgil O.	Commerce	Ashland, Ky.
Watson, Walter Elbert	Psychology	Valley Station, Ky.
Welch, J. G.	Sociology	Lexington, Ky.
Wesley, Wm. M.	Education	Danville, Ky.
Wesley, H. M.	Education	Sonora, Ky.
West, Mary Lucille	Education	Lexington, Ky.
Westerfild, Y. D.	Education	Wilmore, Ky.
Whitehead, Chas. K.	Political Science	Murray, Ky.
Wilkey, C. R.	Education	Dixon, Ky.
Wiley, Frances Naomi	Education	Wilmore, Ky.
Wiley, R. F.	Education	Wilmore, Ky.
Wilford, Edward James	Animal Industry	Lexington, Ky.
Williams, Ella C.	Botany	Lexington, Ky.
Williams, J. B.	Education	Lewisburg, Ky.
William, Jno. D.	Education	Alexandria, Ky.
Willis, Augustus O.	Commerce	Lexington, Ky.
Wilson, Albert M.	Education	Brooksville, Ky.
Wilson, Thos. B.	Political Science	Endee, Ky.
Withers, Frances Spencer	Geology	Cowderly, Ky.
Woods, Vera Mary	Sociology	Trafalgar, Ind.
Woods, Ralph Hick	Education	Lexington, Ky.
Woodward, Christine	Education	Helena Station, Ky.
Woolum, Wm. Gillis	Animal Industry	Louisville, Ky.
Wyatt, Mrs. Ralph C.	Education	Lexington, Ky.
Young, Gordie	Education	Greenville, Ky.
Young, H. F.	Education	Monticello, Ky.
Young, Mrs. H. F.	Education	Monticello, Ky.
Young, Lucy	English	Lexington, Ky.
Zerfoss, Geo. E.	Engineering	Lexington, Ky.
Zimmerman, A. J.	Chemistry	Lexington, Ky.
Zimmerman, Phil W.	English	Louisville, Ky.