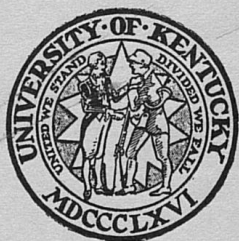


BULLETIN

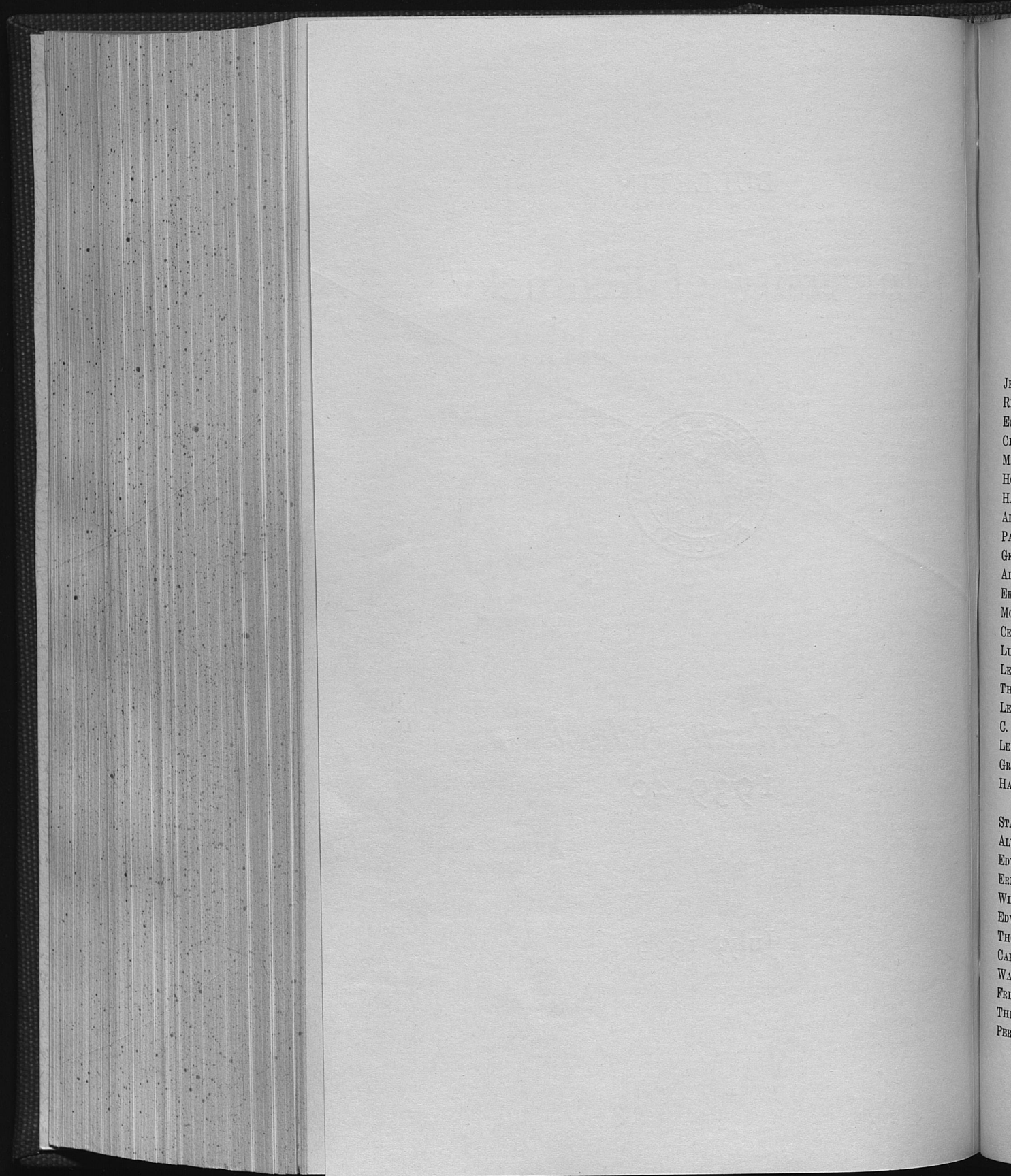
University of Kentucky



Graduate School

1939-40

July, 1939



JE
RI
ES
CE
MA
HO
HA
AD
PA
GE
AL
ER
MO
CE
LU
LE
TH
LE
C.
LE
GR
HA

STA
ALV
EDV
ERN
WI
EDV
TH
CAR
WA
FRI
THE
PER

GRADUATE FACULTY

FRANK LEROND McVEY, A. B., Ph. D., LL. D.
President of the University

WILLIAM DELBERT FUNKHOUSER, A. B., M. A., Ph. D., Sc. D.
Dean of the Graduate School

EZRA L GILLIS, A. B.
Secretary of the Graduate Faculty

JESSE E. ADAMS, A. M., Ph. D.	Education
RICHMOND SWEETEN ALLEN, M. S.	Anatomy and Physiology
ESTON JACKSON ASHER, M. A.	Psychology
CHARLES BARKENBUS, B. S., Ph. D.	Chemistry
MATTHEW HUME BEDFORD, A. B., Ph. D.	Chemistry
HOWARD W. BEERS, B. S., M. S., Ph. D.	Farm Economics ✓
HARRY BEST, A. B., LL. B., Ph. D.	Sociology
ADOLPH E. BIGGE, M. A., Ph. D.	German
PAUL PRENTICE BOYD, A. B., M. A., Ph. D.	Mathematics
GEORGE K. BRADY, A. B., M. A., Ph. D.	English
ALFRED BRAUER, M. A., Ph. D.	Zoology
ERNEST ADOLPHE BUREAU, B. S., Ph. B., E. E.	Engineering
MORRIS G. CALDWELL, A. B., M. A., Ph. D.	Sociology
CECIL C. CARPENTER, Ph. D.	Economics
LUCIAN H. CARTER, M. A., Ph. D.	Economics
LEO MARTIN CHAMBERLAIN, A. M., Ph. D.	Education
THOMAS D. CLARK, A. B., A. M., Ph. D.	History
LEON W. COHEN, A. B., A. M., Ph. D.	Mathematics
C. S. CROUSE, E. M.	Engineering
LEHRE LIVINGSTON DANTZLER, A. M., Litt. D.	English
GRAHAM B. DIMMICK, Ph. D.	Psychology
HAROLD HARDESTY DOWNING, B. C. E., M. S., Ph. D.	Mathematics
STATIE ESTELLE ERIKSON, Ph. D.	Home Economics
ALVIN E. EVANS, M. A., Ph. D., J. D.	Law
EDWARD FRANKLIN FARQUHAR, M. A.	English
ERNEST NEWTON FERGUS, Ph. D.	Agriculture
WILLIAM FRANCIS GALLAWAY, M. A., Ph. D.	English
EDWIN STANTON GOOD, M. S.	Agriculture
THOMAS MARSHALL HAHN, M. S., Ph. D.	Physics
CARSIE HAMMONDS, M. S., Ph. D.	Education
WALTER WILSON JENNINGS, M. A., Ph. D.	Economics
FRITZ JOHN, Ph. D.	Mathematics
THEODORE TOLMAN JONES, A. M., Ph. D.	Ancient Languages
PERRY ELMER KARRAKER, M. A.	Agriculture

CHARLES MERRIAM KNAPP, A. B., Ph. D.....	History
GRANT COCHRAN KNIGHT, A. M.....	English
OTTO TOWNSEND KOPPIUS, B. S., Ph. D.....	Physics
JOHN KUIPER, M. A.....	Philosophy
CLAIBORNE GREEN LATIMER, B. S., Ph. D.....	Mathematics
ARMON J. LAWRENCE, A. B., M. A.....	Commerce
FLORA E. LESTOURGEON, B. A., Ph. D.....	Mathematics
MOSES EDWARD LIGON, A. M., LL. D.....	Education
ARTHUR CRANE MCFARLAN, A. B., Ph. D.....	Geology
FRANK T. MCFARLAND, Ph. D.....	Botany
JOHN WALKER MANNING, A. B., M. A., Ph. D.....	Political Science
RALPH NELSON MAXSON, B. S., Ph. D.....	Chemistry
JAMES BURT MINER, B. S., LL. B., Ph. D.....	Psychology
EDGAR ZAVITZ PALMER, A. B. Ph. D.....	Economics
VIVIAN PALMER, M. A., Ph. D.....	Social Work
LOUIS ARTHUR PARDUE, A. B., M. S., Ph. D.....	Physics
ETHEL LEE PARKER, M. A.....	Education
NIEL PLUMMER, M. A.....	Journalism
MERWIN ELWOOD POTTER, B. S., M. A.....	Physical Education
HUGH BRUCE PRICE, Ph. D.....	Agriculture
EDWARD WARDER RANNELLS, B. A.....	Art
GEORGE ROBERTS, M. S.....	Agriculture
LEWIS CASS ROBINSON, M. S., Ph. D.....	Geology
CLAY CAMPBELL ROSS, A. B., Ph. D.....	Education
L. HOBART RYLAND, A. B., M. A.,	
Docteur de l'Universite	Romance Languages
MORRIS SCHERAGO, B. S., D. V. M.....	Bacteriology
OLUS JESSE STEWART, A. B., M. S., Ph. D.....	Chemistry
RODMAN SULLIVAN, A. B., A. M.....	Economics
WILLIAM SEPTIMUS TAYLOR, M. S., Ph. D.....	Education
DANIEL VOIERS TERRELL, C. E.....	Engineering
L. H. TOWNSEND, Ph. D.....	Entomology
EDWARD TUTHILL, A. B., Ph. D.....	History
WILLIAM DORNEY VALLEAU, Ph. D.....	Agriculture
AMRY VANDENBOSCH, Ph. D.....	Political Science
RALPH HOLDER WEAVER, M. S., Ph. D.....	Bacteriology
WILLIAM SNYDER WEBB, M. S., Sc. D.....	Physics
M. M. WHITE, M. A., Ph. D.....	Psychology
EDWARD WIEST, A. M., Ph. D.....	Economics
RALPH HICKS WOODS, M. A., Ph. D.....	Agriculture

THE GRADUATE SCHOOL

WILLIAM D. FUNKHOUSER, A. M., PH. D., SC. D., DEAN

INTRODUCTORY STATEMENT

Graduate work is offered in all colleges in the University. Approximately three hundred courses are listed in the catalog, 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 Arts in Education
- Master of Science in Education
- Master of Science in Agriculture
- Master of Science in Home Economics
- Master of Science in Public Health
- Master of Science in Civil Engineering
- Master of Science in Electrical Engineering
- Master of Science in Mechanical Engineering
- Master of Science in Metallurgical Engineering
- Master of Science in Mining Engineering
- Civil Engineer (C. E.)
- Electrical Engineer (E. E.)
- Mechanical Engineer (M. E.)
- Metallurgical Engineer (Met. E.)
- Mining Engineer (E. M.)
- Doctor of Philosophy

The degree of Doctor of Philosophy is offered with major work in the following departments: Chemistry, Education, Economics, English, History, Mathematics, Physics, Psychology, and Political Science. 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.

Members of the faculty of the University of Kentucky having a rank higher than that of instructor may not be considered as candidates for advanced degrees at this institution.

REGISTRATION

Graduate students should register in the Graduate School on special cards prepared for this purpose.

Applicants from institutions other than this University are also required to file an official transcript showing (a) all undergraduate work covered, (b) graduate work taken, if any, and (c) degrees received.

If the record submitted to the Registrar entitled him to admission he should confer with the Dean of the Graduate School and his major Professor concerning preliminary requirements that he may have to satisfy and as to the graduate courses that he should take.

Preliminary requirements may be added from time to time as found necessary and all such requirements, together with graduate courses, must be recorded in the Registrar's Office and must be satisfied by the student before he is eligible for the degree for which he is registered.

All courses listed in this bulletin, and all courses which may appear later in the regular University catalog, which have numbers above 100, may be counted as credit towards a graduate degree. A grade of D in a course will not be given graduate credit or residence.

FEES

Registration and laboratory fees are the same as for undergraduate students in the college in which the major work is done, that is, \$50.00 for residents of Kentucky; \$63.00 for non-residents. This does not include laboratory fees.

Before the advanced degree is conferred, a fee of fifteen dollars must be paid at the Business Office of the University. This covers the graduation fee, diploma fee, fee for binding thesis and all other incidental fees.

APPLICATION FOR DEGREE

All candidates for degrees are required to make formal application for the degree at the office of the Registrar, on special cards provided for that purpose, at least one month before the date on which the degree is to be conferred.

REQUIREMENTS FOR ADVANCED DEGREES

A graduate student is expected to familiarize himself with the requirements for the degree for which he is a candidate and is held responsible for the fulfillment of these requirements. This applies to the last dates on which theses may be accepted, the dates for examinations, the proper form for theses and all other matters regarding requirements for degrees.

The University of Kentucky offers the degree of Doctor of Philosophy in the nine departments listed on page 5 of this bulletin, the regular academic degrees of Master of Arts and Master of Science in all departments and professional degrees in Education, Engineering, Agriculture and Home Economics. The requirements for these various degrees are as follows:

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

CREDITS

The candidate shall complete twenty-four semester hours of graduate work in course with a standing of 2 and no grade below C shall be counted.

COURSES

The major field shall comprise, as to courses, approximately two-thirds of the work and a minor (within the department or allied departments) of approximately one-third of the work. The two shall have graduate relationship.

RESIDENCE

The minimum residence requirement is one academic year of 36 weeks. This residence requirement 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 can always be completed in the minimum length of time. Inadequate preparation or assistance in departments very frequently make a longer period necessary. Part-time work during a regular semester is evaluated on the basis of the amount of work carried, but the amount of residence for part-time work is limited, except for graduate assistants and part-time instructors, to not more than six weeks in any one semester or summer session.

TRANSFER OF CREDITS

No transferred credits are accepted toward the Master of Arts or Master of Science degrees. All work for these degrees must be done at the University of Kentucky. However, a student is not asked to repeat a course which he has satisfactorily completed at another institution.

THESIS

A thesis is required of every candidate. 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.

The Graduate School issues a special bulletin giving definite instructions regarding the form in which the thesis must be presented, and stating the University regulations regarding the style of cover page, title page, biographical sketch, etc., which must be followed. Students are required to observe these instructions in submitting theses and dissertations.

LANGUAGE REQUIREMENT

A reading knowledge of at least one foreign language is required. This language should be pertinent to the program of the student. The language requirement must be satisfied by an examination given by the foreign language department offering instruction in the language concerned. The passing of this examination shall satisfy one of the two language requirements for the doctorate.

The language examinations are given by the foreign language departments on the first of October, the first of March (unless these dates fall on Sunday, in which case the examinations will be held the following Monday) and during the second week of the first term of the Summer Session. These examinations are given at no other times and students must take the examinations on the dates specified in order to qualify for their degrees for the following commencement.

EXAMINATIONS

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.

REQUIREMENTS FOR THE DEGREES OF MASTER OF ARTS IN EDUCATION AND MASTER OF SCIENCE IN EDUCATION

The professional degree of Master of Arts in Education is open to students who have received the degree of B. A. or B. A. in Education

and the professional degree of Master of Science in Education is open to students who have received the degree of B. S. or B. S. in Education.

Two plans are provided for satisfying the requirements for either of these degrees as follows:

1. Twenty-four credits in graduate courses exclusive of the thesis, one academic year (36 weeks) in residence and an acceptable thesis.
2. At the option of the department (not of the student) the master's degree in Education may be granted for the completion of thirty-six credits in graduate courses with an average standing of 2 or better, forty-eight weeks in residence and no requirement of a thesis.

There is no language requirement for either of the professional degrees in Education.

REQUIREMENTS FOR THE DEGREES OF MASTER OF SCIENCE IN AGRICULTURE AND MASTER OF SCIENCE IN HOME ECONOMICS

Students holding the degree B. S. in Agriculture, B. S. in Home Economics, or the equivalent, may become candidates for the degree M. S. in Agriculture, or M. S. in Home Economics respectively. Admission to candidacy shall be upon the approval of the Graduate Committee of the College of Agriculture. The approval of this Committee must be obtained during the first semester or term of the student's residence in the Graduate School.

Two plans are provided for satisfying the requirements for either degree, namely:

1. Twenty-four credits (exclusive of the thesis) in graduate courses, one academic year of 36 weeks in residence, and an acceptable thesis.

Or,

2. At the option of the Graduate Committee of the College of Agriculture and not at the student's option, the master's degree in Agriculture or in Home Economics may be granted without a thesis for the completion of 36 credits of graduate work with a standing of 2 or better, and 48 weeks in residence.

There is no language requirement for either of the professional degrees in Agriculture.

REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN PUBLIC HEALTH

Students holding a bachelor's degree from a fully accredited institution or the M. D. degree from a recognized Medical School may obtain

the degree of Master of Science in Public Health by satisfying either of the following requirements:

1. The completion of 24 credits of graduate work for which only grades above D are counted, 36 weeks of residence and a thesis.

Or,

2. The completion of 36 credits of graduate work with a standing of 2 or better, 48 weeks of residence and no thesis requirement.

A final comprehensive examination is required of all candidates. There is no language requirement for this professional degree.

REQUIREMENTS FOR ADVANCED DEGREES IN ENGINEERING

Two classes of advanced degrees are offered in the College of Engineering, the Master's Degrees and the Professional Degrees.

THE MASTER'S DEGREES IN ENGINEERING. The Master's degrees in engineering may be obtained by satisfying the following requirements:

Twenty-four credits in graduate courses, one academic year (thirty-six weeks) in residence and an acceptable thesis.

The candidate must hold the corresponding Bachelor of Science degree in engineering from this institution or from another engineering school of recognized standing. The degrees offered are Master of Science in Civil Engineering, Master of Science in Electrical Engineering, Master of Science in Mechanical Engineering, Master of Science in Metallurgical Engineering, Master of Science in Mining Engineering.

THE PROFESSIONAL DEGREES IN ENGINEERING. The professional degree of Civil Engineer (C. E.), Electrical Engineer (E. E.), Mechanical Engineer (M. E.), Metallurgical Engineer (Met. E.), or Mining Engineer (E. M.) will be granted only to graduates of the University of Kentucky, College of Engineering, who present satisfactory evidence of professional work of creditable quality in the engineering fields of their choice, extending over a period of five years, and who submit satisfactory theses as further evidence of their professional attainments.

Applications for professional degrees must be made with the Dean of the Graduate School not less than one year before the degree may be granted, and have the approval of the Graduate Committee of the College of Engineering.

The Graduate Committee will pass on the qualifications of all applicants for the professional degrees. It may, at its discretion, require an oral examination.

A candidate holding the M. S. degree in engineering shall be considered to have fulfilled two years of the five-year requirement for the corresponding professional degree.

A candidate holding the B. S. degree in one field of engineering may apply for the professional degree in another field of engineering, if he has attained unusual prominence and success in that field.

The fees for residence students who are candidates for M. S. degrees in engineering are the same as for undergraduates (see page 6). The fees for the Professional degrees are \$15.00 registration fee and \$15.00 graduation fee.

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 examination 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 a 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 passed 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 requirements 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 a 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.

Candidates for the doctor's degree who major in the College of Education may not satisfy residence requirements entirely by attendance in Summer Sessions, but must attend at least two semesters during the regular college year. (See announcement under EDUCATION.)

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. The German department will examine applicants during each semester and also during the summer session. 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 Faculty. If the applicant passes the qualifying examination he is then considered as a *candidate* for the degree and may make formal application for his 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 typewritten 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 dissertation 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 slightly 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

The University of Kentucky offers the following graduate fellowships and scholarships for the encouragement of research and advanced study:

The Margaret Voorhies Haggin Trust Fellowships and Scholarships in memory of her father, George Voorhies.

Two University fellowships with a stipend of \$500.00 each.

Eight University fellowships with a stipend of \$400.00 each.

Nineteen University scholarships with a stipend of \$200.00 each.

One Registrar's fellowship with a stipend of \$500.00.

The primary object of these appointments is to stimulate research and not to give pecuniary aid. Scholars and fellows are expected to devote their entire time to graduate work, and no teaching or other departmental work may be required of them. The award is paid in ten equal monthly installments and does not include a remission of tuition or other University fees. The appointments are made for one year only but may be renewed if it can be shown that the prosecution of research should continue.

These fellowships and scholarships are open to students who hold a bachelor's degree from any college or university in good standing, provided the student has shown some special aptitude for the line of work he desires to pursue. No student should apply for the award who does not cherish a real and earnest desire to do research work.

Forms for making application may be secured from the Dean of the Graduate School and must be submitted not later than the first 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 provide ways and means for securing prominent men for addresses on various subjects of interest.

GRADUATE COURSES OF STUDY

The courses offered for graduate work are listed under the following groups:

I. LANGUAGES AND LITERATURES

- Ancient Languages
- English
- German
- Journalism
- Library Science
- Romance Languages

II. SOCIAL SCIENCES

- Archæology (See Biological Sciences)
- Commerce
- Commercial Education (See Education)
- Economics
- Educational Psychology (See Education)
- Farm Economics (See Agriculture)
- History
- History of Education (See Education)
- Law (See Law)
- Markets and Rural Finance (See Agriculture)
- Philosophy
- Philosophy of Education (See Education)
- Political Science
- Psychology
- Sociology

III. BIOLOGICAL SCIENCES

- Agronomy (See Agriculture)
- Anatomy and Physiology
- Animal Industry (See Agriculture)
- Animal Pathology (See Agriculture)
- Anthropology and Archæology
- Bacteriology
- Botany
- Entomology (See Agriculture)
- Horticulture (See Agriculture)
- Hygiene
- Psychology (See Social Sciences)
- Zoology

IV. PHYSICAL SCIENCES

Chemistry
Engineering (See Engineering)
Geology
Mathematics and Astronomy
Physics

V. AGRICULTURE

Agriculture Education (See Education)
Agricultural Entomology
Agronomy
Animal Industry
Animal Pathology
Farm Economics
Farm Engineering
Home Economics
Home Economics Education (See Education)
Horticulture
Markets and Rural Finance

VI. EDUCATION

Administration
Agricultural Education
Commercial Education
Educational Psychology
Elementary Education
History of Education
Home Economics Education
Philosophy of Education
Physical Education
Secondary Education

VII. ENGINEERING

Civil Engineering
Electrical Engineering
Mechanical Engineering
Metallurgical Engineering
Mining Engineering

VIII. FINE ARTS

Art
Music

IX. LAW

X. SOCIAL WORK

I. LANGUAGES AND LITERATURES

ANCIENT LANGUAGES AND LITERATURES

LATIN

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, A. D.

Prerequisite: Latin 7 or 8. 3 credits; 1st semester (Jones)

110—LATIN LITERATURE (Selections). The authors read will probably be: Suetonius (Claudius and Nero); Seneca (Selections). The private life of the Cæsars is discussed in detail. The principles of the Stoic Philosophy are explained.

Prerequisite: Latin 7 or 8. 3 credits; 2nd semester (Jones)

114a—LATIN COMPOSITION. The course will begin with easy passages in connected discourse and will proceed to more difficult selections.

Prerequisite: Latin 5. 1 credit; 1st semester (Jones)

114b—LATIN COMPOSITION. A continuation of 114a.

Prerequisite: Latin 5. 1 credit; 2nd semester (Jones)

120—GREEK CIVILIZATION (Given entirely in English). A brief review of Ancient Greek history; the private and public life of the people; archæology.

Prerequisite: Junior Standing. 3 credits; 1st semester (Jones)

121—ROMAN CIVILIZATION (Given entirely in English). A brief review of Roman history; private and public life of the Romans; Roman archæology.

122a—GREEK LITERATURE IN ENGLISH TRANSLATION. Several of the great authors will be studied, beginning with Homer.

Prerequisite: Junior Standing. 3 credits; 1st semester (Jones)

122b—A continuation of 122a. Prose writers will be studied; historians, orators, philosophers.

Prerequisite: Junior Standing. 3 credits; 2nd semester (Jones)

151a—COURSE IN INDIVIDUAL WORK. The work assigned will depend upon the needs of the student.

Prerequisite: Junior Standing. 3 credits; 1st semester (Jones)

151b—COURSE IN INDIVIDUAL WORK. A continuation of 151a.

Prerequisite: Junior Standing. 3 credits; 2nd semester (Jones)

201a—LATIN PASTORAL POETRY. This course is based mainly on Virgil's Eclogues 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.

Prerequisite: Graduate Standing. 3 credits; 1st semester (Jones)

201b—LATIN ELEGIAC POETRY. Selections from Catullus, Tibullus, Propertius, and Ovid will be read. The change in the subject matter of the Elegy will be noted. Scanning. Mythological references studied.

Prerequisite: Graduate Standing. 3 credits; 2nd semester (Jones)

GREEK

149—FREEMAN AND LOWE'S GREEK READER will be read and easy selections from other writers. Exercises in construction and composition.

Prerequisite: Junior Standing. 3 credits; 2nd semester (Jones)

152—ANABASIS. Selections from Books 2-4 of the Anabasis and from other writers of equal difficulty will be read.

Prerequisite: Greek 149. 3 credits; 1st semester (Jones)

153—HOMER. The Iliad, Books 1-6. The Homeric Question, Life in the Homeric Age. Mycenaean Antiquities. Recent discoveries will receive due attention. Scanning.

Prerequisite: Greek 149. 3 credits; 2nd semester (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.

Prerequisite: Greek 152. 3 credits; 1st semester (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.

Prerequisite: Greek 152. 3 credits; 2nd semester (Jones)

ENGLISH

The Department of English requires, as a prerequisite for the master's degree, attainment in English equivalent to that required of an undergraduate English major at the University of Kentucky. For the M. A. degree, a minimum of sixteen hours of English must be offered, including seminar throughout the year. A maximum of eight hours in other subjects is permitted, provided these courses have the approval of the Graduate Committee of the Department of English. All candidates for the master's degree in English will be required to attain a reading knowledge of one foreign language before receiving the degree.

100a—SENIOR REVIEW OF ENGLISH LITERATURE. An advanced course for senior majors in English; the approach will be historical; it is designed not only to give the student a knowledge of the continuity of English literature, but also to integrate ideas presented to him during his college career; it will serve as a basis for review, correlation and extension of the student's curriculum. Required of all English majors.

3 credits; 1st semester (Staff)

100b—SENIOR REVIEW OF ENGLISH LITERATURE. A continuation of English 100a.

3 credits; 2nd semester (Staff)

102—HISTORY OF THE ENGLISH LANGUAGE. A survey of the development of the language, based upon Emerson's *History of the English Language*; other readings upon various phases of language development.

3 credits; 1st semester (Dantzler)

105—CHAUCER.

3 credits.

106a—ENGLISH ROMANTIC 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 eighteenth 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 nineteenth century.

3 credits; 1st semester (Brady)

106b—ENGLISH ROMANTIC PROSE. This course is designed to continue the study of ideas developed in English 106a as revealed in Rousseau, Godwin, Coleridge, Hazlitt, Lamb, DeQuincey, the Gothic romance, and Scott.

3 credits; 2nd semester (Brady)

107a—VICTORIAN POETS. 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.

3 credits; 2nd semester (Brady)

107b—VICTORIAN PROSE. A careful study of Carlyle, Ruskin, Newman, Spencer, Arnold, Huxley, and related writers of the period in the field of prose. Assigned parallel readings, class discussion, and lecture.

3 credits; 1st semester (Brady)

108a—PRINCIPLES OF LITERARY CRITICISM. The course attempts to show criticism as a growth and development in an historical survey and to give a corpus of opinion about literature.

3 credits; 1st semester (Farquhar)

108b—PRINCIPLES OF LITERARY CRITICISM. A continuation of English 108a.

3 credits; 2nd semester (Farquhar)

109—PRE-SHAKESPEAREAN DRAMA. An historical course in English dramatic origins.

3 credits; 1st semester (Farquhar)

110a—SHAKESPEARE—COMEDY. Shakespeare's comedies will be studied in detail.

3 credits; 2nd semester (Farquhar)

110b—SHAKESPEARE—TRAGEDY. A continuation of 110a.
3 credits; 2nd semester (Farquhar)

111b—THE ENGLISH NOVEL AFTER SCOTT. It aims to acquaint the student with the development of the novel to and including Stephen Crane; and to assist him in forming theories concerning the art of fiction and appreciation of masterpieces. Eleven novels will be read.

3 credits; 2nd semester (Knight)

116—The CONTEMPORARY DRAMA. Development and tendencies in Continental, British, and American Dramatic literature, 1850 to 1918.

3 credits (Farquhar)

123a—AMERICAN LITERATURE BEFORE 1860. A survey course designed to introduce the student to influence in American life and thought as well as to its letters. The Puritan and Colonial writers. An anthology and two complete texts are used.

3 credits; 1st semester (Knight)

123b—AMERICAN LITERATURE AFTER 1860. A continuation of English 123a, which is not prerequisite. Beginning with the Civil War and with considerable attention to Walt Whitman, Emily Dickinson, and the rise of the short story, the realistic school of fiction, and the various groups of modern poets, the survey ends with a discussion of contemporary novelists, essayists, poets, and dramatists.

3 credits; 2nd semester (Knight)

124—THE RENAISSANCE. A survey of the literature of the Elizabethan period exclusive of the drama. Foreign sources of the English Renaissance. The sonnet from its origin to its development in Spenser. The pastoral from Theocritus to Spenser. Utopian literature from Plato to More.

3 credits; 1st semester (Dantzler)

125—PRONUNCIATION OF MODERN ENGLISH. A study of present day pronunciation; dialectical peculiarities. Students will become proficient in using a phonetic alphabet.

3 credits; 2nd semester (Dantzler)

127a—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.

2 credits; 1st semester (Farquhar)

127b—LITERATURE OF THE BIBLE. This is a continuation of 127a.

2 credits; 2nd semester (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 discussion.

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.

3 credits; 1st semester (Brady)

130b—COMPARATIVE LITERATURE. A continuation of English 130a.

3 credits; 2nd semester (Brady)

131a-d—INDEPENDENT WORK. A course for juniors and seniors of exceptional scholastic standing. Each student pursues a course independently. He writes a paper embodying results of this study and submits to an examination by the staff of the Department.

2 credits; both semesters

(Dantzler and others)

133—THE DEVELOPMENT OF AMERICAN REALISM. Traces the progress of American realism from Yankee and pioneer humorists through the local color school, the leading novelists of the eighties and nineties, their contemporaries in drama and poetry, to the writers of today. Especial attention is given to the social and economic conditions which motivated this literature.

3 credits; 1st semester (Knight)

143—EDGAR ALLEN POE. A comprehensive study of Poe's works, poetry and prose. Primarily for the summer session.

3 credits; summer session (Farquhar)

147—AGE OF JOHNSON. From the death of Pope to 1798. Johnson and his circle: Burke, Goldsmith, Gray, Walpole, Cowper. The pre-romantic movement.

3 credits; 2nd semester (Gallaway)

152—AGE OF POPE. Addison and Steele, Swift, Pope, and Defoe.

3 credits; 1st semester (Gallaway)

155a—CONTEMPORARY ENGLISH POETRY. An examination of the forces which developed to create modern poetry in England and America since 1900. The course to be historical of the movements and currents in their origins and ideas and to be literary and esthetic in an appreciation of form, matter and style. Collateral reading.

3 credits; 1st semester (Farquhar)

155b—CONTEMPORARY ENGLISH POETRY. A continuation of 155a.

3 credits; 2nd semester (Farquhar)

160—ACTING. Theory and practice of the art of acting, including improvisations and characterizations. Pantomime and make-up. Theory of acting applied to individual problems and group work. Development of mood and dramatic continuity. Members of the class will be given the first consideration for performance in public performances.

2 credits; 1st semester (Fowler)

161—DIRECTING. Practice in directing; theory of plotting a play for direction; how to guide the actor in analysis, construction, and projection.

2 credits; 2nd semester (Fowler)

170a—BACKGROUNDS OF MODERN LITERATURE. A study of the relations between modern philosophic, psychological, and social thought and literature. The European novel will be used as a focus for study. Naturalism, symbolism, impressionism, humanism, expressionism, stream-of-consciousness, and sur-realism will be evaluated. Mann, Proust, Romaine, Yeats, Huxley, Lawrence, Joyce, and others.

3 credits; 1st semester (Gallaway)

170b—BACKGROUNDS OF MODERN LITERATURE. A continuation of English 170a.

3 credits; 1st semester (Gallaway)

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.

Prerequisites: English

3 credits; 1st semester

108a-b.

(Farquhar)

201b—LITERARY CRITICISM. A continuation of 201a. Special problems assigned to students.

3 credits; 2nd semester (Farquhar)

202a—STUDIES IN CONTEMPORARY DRAMA. This course is an application of the philosophy and history of drama to the modern drama 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: English

3 credits; 1st semester

116.

(Farquhar)

202b—STUDIES IN CONTEMPORARY DRAMA. A continuation of 202a. Special problems assigned to students.

3 credits; 2nd semester (Farquhar)

210—SEMINAR. BIBLIOGRAPHICAL STUDIES. Required of all candidates for the M. A. degree.

3 credits; 1st semester (Brady)

212a-d—SEMINAR. STUDIES IN PHILOLOGY. Studies in Old English poetry and prose—Cynewulf, Beowulf; Alfred and his circle; Middle English—Chaucer.

3 credits a semester (Dantzler)

213a-d—SEMINAR. STUDIES IN EIGHTEENTH CENTURY LITERATURE. Johnson and his circle, Swift, the Romantic Revolt, or the foreign relations of English literature in the eighteenth century

will be chosen for extensive investigation according to the needs of the students in the group.

3 credits a semester (Gallaway)

214a-d.—SEMINAR. VICTORIAN LITERATURE. Intensive studies in the social and literary significance of Arnold, Browning, Carlyle, and Ruskin.

3 credits a semester (Brady)

215a-d.—SEMINAR. CULTURAL STUDIES. These seminars seek primarily to present the problems of criticism, structural and historical. Critical backgrounds will be stressed so that critical studies in English literature may be made.

3 credits a semester (Farquhar)

216a-d.—SEMINAR. THE CRITICAL PERIOD IN AMERICAN LITERATURE: 1890-1900. A study of the literature of the nineties, with emphasis upon the battle over realism, the loss of early national optimism, the resistance to naturalism, and the development of a genuine American literature. Special attention is given to the esthetic and social problems found in the works of Garland, Henry James, Howells, and Stephen Crane; lesser writers and the magazines of the period are also investigated. One long research paper and one or more short ones are required.

3 credits a semester (Knight)

217a-d.—SEMINAR. STUDIES IN CONTEMPORARY AMERICAN LITERATURE. A seminar in American literature from 1914 to the present. A preliminary survey of the trends of contemporary American literature is followed by research based upon the work of one writer or one school of writers of the 1930's. One long paper and one or more short ones are required.

3 credits a semester (Knight)

GERMAN

The Department of German requires as a prerequisite for the Master's degree, attainment in German equivalent to that required of a German major. The number of hours of German required for the M. A. degree will vary depending upon the advanced courses the student may be asked to take and/or permitted to take in related departments.

101a—NINETEENTH CENTURY LITERATURE. Studies in German Literature of the nineteenth century with special emphasis on representative authors.

Prerequisite: German 3b. 3 credits; 1st semester (Whitaker)

101b—NINETEENTH CENTURY LITERATURE. Continuation of 101a.

Prerequisite: German 3b. 3 credits; 1st semester (Whitaker)

102a—TWENTIETH CENTURY LITERATURE. A study of the trend in German Literature of the twentieth century. Gerhart Hauptmann will be studied in greater detail than his contemporaries. Readings, reports and term paper.

Prerequisite: German 3b. 3 credits; 1st semester (Bigge)

102b—TWENTIETH CENTURY LITERATURE. Continuation of 102a.

Prerequisite: German 3b. 3 credits; 2nd semester (Bigge)

103a—LIFE AND WORKS OF GOETHE. This course follows the unfolding of Goethe's genius from his first lyrics through the second part of Faust. His principal literary works will be read and special attention devoted to autobiographical material, letters, and diaries.

3 credits; 1st semester (Hegeman)

103b—LIFE AND WORKS OF GOETHE. Continuation of Course 103a.

3 credits; 2nd semester (Hegeman)

105a-d—INDEPENDENT WORK IN GERMAN. This course is limited to those upper division and graduate students who have shown special proficiency in the department.

Prerequisite: German 3b. 3 credits; both semesters (Staff)

110a—GERMAN LITERATURE IN ENGLISH TRANSLATION. The aim of this course is to furnish students not having a reading knowledge of German with an understanding of the content and significance of German literature from the earliest records to the present. Election of this course will not count toward satisfying the University's language requirement, and it may not be elected by any student enrolled in another "100" or "200" course in this department.

3 credits; 1st semester (Staff)

110b—GERMAN LITERATURE IN ENGLISH TRANSLATION. Continuation of Course 110a.

3 credits; 2nd semester (Staff)

[OFFERED 1938-39]

S160a—LITERARY LANDMARKS OF GERMANY. This course will run approximately six weeks and will be devoted mainly to directed travel and study in Germany and Austria. It is the purpose of this course to review the noteworthy contributions of German men of letters and to acquaint the student with the actual circumstances calling forth the creating of these literary works. Tour, assigned readings, quizzes, lectures and reports. (Scheduled concurrently with S160b.)

*Prerequisites: German 2b
or its equivalent and
permission of the Ger-
man Department.*

3 credits; summer (Bigge)

S160b—LITERARY LANDMARKS OF GERMANY. Continuation of S160a. (To be scheduled concurrently with S160a.)

Prerequisites: German 2b 3 credits; summer (Bigge)
or its equivalent and permission of the German Department.

201a—MIDDLE HIGH GERMAN. This is essentially a literary course with only the necessary minimum of Middle High German grammar. Selections will be read from both the epic and lyric poetry of the period, and reports will be given on assigned topics.

3 credits; 1st semester (Hegeman)

201b—MIDDLE HIGH GERMAN. Continuation of Course 201a.

3 credits; 2nd semester (Hegeman)

203a—GERMAN LITERATURE FROM LUTHER TO LESSING. This course traces the principal trends in German life and thought from the Protestant Reformation through the Age of Enlightenment, as they are reflected in the work of the chief authors.

3 credits; 1st semester (Bigge)

203b—GERMAN LITERATURE FROM LUTHER TO LESSING. Continuation of Course 203a.

3 credits; 2nd semester (Bigge)

JOURNALISM

Note.—Prerequisites for journalism majors for the following courses include 2a, b and 20a, b.

102—COMMUNITY JOURNALISM. A study of the problems which confront the community weekly and the small city daily.

Prerequisite: Junior 3 credits; 1st semester (Portmann)
standing.

103—NEWSPAPER ADMINISTRATION. A study of the business, circulation, advertising, and accounting divisions of the newspaper with special emphasis on the community newspaper.

Prerequisite: Junior 3 credits; 2nd semester (Portmann)
standing.

104a—COPYREADING, TYPOGRAPHY. No credit for 104a until 104b has been completed. A study of the editorial branch of the newspaper in which all news is selected and prepared for publication. A comprehensive study is also made of modern typography and newspaper makeup.

Prerequisite: Junior 3 credits; 1st semester (Tucker)
standing.

104b—COPYREADING, TYPOGRAPHY. A continuation of 104a.

Prerequisite: Junior 3 credits; 2nd semester (Portmann)
standing.

105—LAW OF THE PRESS. A study of the special laws of libel, copyright, and regulatory provisions that pertain to the press.

Prerequisite: Junior 2 credits; 1st semester (Plummer)
standing.

106—INFLUENCE OF THE NEWSPAPER. A course devoted to the examination of criticisms of the modern press and an evaluation of the influence of the press in the twentieth century. Lectures and readings directed toward the evolution of principles for the guidance of members of the news, editorial, and business staffs of newspapers.

Prerequisite: Senior 3 credits; 2nd semester (Plummer)
standing.

107—EDITORIAL WRITING. A study of editorials, editorial columns, and editorial pages. Publication is encouraged.

Prerequisite: Senior 2 credits; both semesters (Tucker)
standing.

108—HISTORY OF JOURNALISM. A study of the rise and development of American journalism and newspapers.

Prerequisite: Senior 3 credits; 1st semester (Portmann)
standing.

110—SUPERVISION OF HIGH SCHOOL PUBLICATIONS. A study of the problems that confront the adviser of the high school newspaper or magazine. Open to advisers or prospective advisers with consent of the instructor.

Prerequisite: Senior 3 credits; summer session (Portmann)
standing.

111—VERBAL CRITICISM. A study of words and their synonyms with reference to developing accuracy in use of English in journalistic work.

Prerequisite: Junior 3 credits; both semesters (Tucker)
standing.

112—CRITICAL WRITING FOR THE PRESS. The function of criticism in journalism. Reviewing of motion pictures, plays, concerts, and books with emphasis upon work for Kentucky newspapers

Prerequisite: Senior 3 credits; both semesters;
standing. summer session (McLaughlin)

114—NEWSPAPER ADVERTISING. Writing newspaper advertising; analysis of local markets; rates and rate structures; planning and selling display and classified advertising; cooperation with the small merchant; ethics, standards, laws.

Prerequisite: Senior 3 credits; 1st semester (Portmann)
standing.

115—ADVERTISING TYPOGRAPHY AND LAYOUT. A study of the principles of typographic families and illustrations and decorations

that pertain to modern advertising. Practical work with merchants is included in the latter part of the course.

Prerequisite: Senior 3 credits; 2nd semester (Portmann) standing.

118—PUBLICITY FOR SCHOOLS AND PUBLIC SERVICE AGENCIES. Lectures and practice dealing with the aims and methods of writing news and special articles on the work of schools, colleges, libraries, and social service agencies.

Prerequisite: Senior 3 credits; summer session (Portmann) standing.

120—SEMINAR IN PUBLIC OPINION. A detailed examination of techniques developed and used by the press in influencing public opinion. Specific cases studied. Latter part of the course devoted to the preparation of newspaper campaigns with current problems of society.

Prerequisite: Senior or graduate standing. 3 credits; 2nd semester (Plummer)

123—FEATURE WRITING. A study of the writing of feature stories for newspaper, trade magazines, and other publications. Publication of copy is encouraged.

Prerequisite: Junior 3 credits; both semesters (Tucker) standing.

125—MAGAZINE ARTICLE WRITING. Lectures, personal conferences, and practice in writing and submitting material for publication in magazines; study of markets; free-lance writing.

Prerequisite: Senior 3 credits; summer session (Tucker) standing.

127—REPORTING PUBLIC AFFAIRS. Instruction and practice in reporting the news originating in courts and other public institutions and the news on politics, finance, and labor.

Prerequisite: Senior 2 credits; 2nd semester (Plummer) standing.

LIBRARY SCIENCE

A certificate is granted to graduate students completing satisfactorily 30 credits of professional courses in this department.

GENERAL COURSES

105—READING GUIDANCE. A study of adolescent reading interests and problems; of the nature and content of books available to young people of the secondary school level; of the tools for book selection; and of methods which may be used by teachers to stimulate and direct the reading of young people. Books to correlate with English, social sciences, science and vocational guidance will be stressed espe-

cially. *A non-technical course designed to meet the needs of teachers. Open only to upper division and graduate students.*

2 credits; both semesters (Staff)

107—FUNCTION AND USE OF THE LIBRARY IN THE SCHOOL. A course open to teachers and students preparing to teach, to familiarize them with the functions and use of the school library in modern schemes of education. Designed to acquaint the teacher with the variety and extent of service of the school library, methods by which the library may be adapted to fit the teacher's needs, reference books and services, costs and standards for effective school library service, and administrative problems which necessitate cooperation of school administrators, teachers and school librarians. Opportunity is afforded for the development of individual projects which correlate the library with teaching. *A non-technical course open only to upper division and graduate students.*

2 credits; both semesters (Staff)

PROFESSIONAL COURSES

126—LIBRARY ADMINISTRATION. A study of the place, function and administration of the library in the modern school and community and of the relationship of the library and librarian to the teachers, pupils and parents. Major supplementary topics discussed: Library planning and equipment; standards; personnel problems; relation of library to outside agencies; business management of the library including budgeting, accounting, attendance; methods of stimulating the use of books, and of handling service. *Supplemented by L. S. 144.* Assigned readings, class discussions, lectures, special reports and projects.

3 credits; 1st semester (Wofford)

128—CHILDREN'S LITERATURE. A survey of the field of children's literature with comparative study of representative types of books for children from the standpoint of presentation, use and interest for different ages and groups (from pre-school through Junior High School). Special study of illustration and physical make up of books; of editions; of children's magazines and book reviewing periodicals; and of aids in the selection of children's books.

2 credits; 2nd semester (Wofford)

129a, b—CATALOGING AND CLASSIFICATION. A study of the principles and forms of classification and cataloging as complimentary devices of arranging printed materials and of providing a key to their nature, location and contents; with special emphasis on their application to the effective administration of the school library and its major function—service to the reader. Practice work under supervision is required in classifying materials by the Dewey Decimal system and

in making a shelf list and a dictionary card catalog by the use of the unit card.

3 credits; 1st semester (Semmons)

2 credits; 2nd semester (Semmons)

132—LIBRARY WORK WITH CHILDREN. The effective organization and administration of library work with children, especially in the elementary school. Emphasizes the equipment and vital services of the children's library; the assembly of special materials; reading guidance, including discussions of the librarian's part in a program of remedial reading; story telling and special methods of stimulating children's reading.

2 credits; 2nd semester (Wofford)

133a, b—REFERENCE AND BIBLIOGRAPHY. A study of the essential reference works, particularly those most valuable in school libraries, including dictionaries, encyclopedias, atlases, yearbooks, periodical indexes and reference books on special subjects; of the more important subject and trade bibliographies; of government documents and vertical file material, and of the standards and methods by which such material is selected, organized and efficiently used.

3 credits; 1st semester (Cass)

2 credits; 2nd semester (Cass)

138—METHODS OF TEACHING THE USE OF THE LIBRARY.

This course emphasizes effective interpretation of the function, facilities and services of the library in the modern school and community. The first half semester is devoted to a study of administrative problems to be considered in formal instruction in the use of the library by the librarian or teacher, examination of the bibliographies of the field, and of content and teaching methods for various units as adapted to the school levels and particular groups taught. Class members prepare and present actual lessons correlated with the subject curricula of the school. Informal methods of encouraging use of the library, its tools and services, are emphasized the second half semester; especially oral and visual devices (assembly programs, radio, films) and printed aids (news releases, library handbooks, exhibits).

Prerequisite: 133a.

2 credits; 2nd semester (Staff)

139—FIELD WORK. Comparable to practice teaching. Observation of service in libraries in the area and supervised practical work in all departments of the libraries of the University Training School and nearby school systems. Two periods a week of two consecutive hours; supplemented by Seminar discussions. The course is designed to give the librarian in training an appreciation of library work as a whole by affording him opportunity for wide observation, for comparison of libraries and their methods, and for actual practice.

Prerequisites: 126, 128,

2 credits; 2nd semester

129, 133, 144, 150.

(Wood and Semmons)

144—LIBRARY RECORDS AND METHODS. A course presenting the fundamental knowledge and techniques necessary to the development of efficient procedures for the acquisition, preparation, care, circulation and use of books and minor materials in the library, with emphasis on the importance to effective library service of the application of the best business methods to these routines, and of careful interpretation of statistics and services to administrators, staff and readers. *Correlated with Library Science 126.* Assigned readings, class discussion, lectures and demonstrations, special problems and projects.

2 credits; 1st semester (Wofford)

150a, b—BOOK SELECTION. A study of principles and standards in the choice of books, periodicals, pamphlets and visual materials for library use. The course includes practical problems in the selection of books; a comparative study of the products of American publishers, editions, series, etc.; of critical examination of book reviewing periodicals and aids to book selection; the writing of book notes and reviews; the reading and evaluation of typical books of biography, travel, literature, science, useful and fine arts, and social science. The second semester is devoted to the study of the reading interests of young people of High School age and of the choice of books for them from the point of view of school and individual needs.

3 credits; 1st semester (Wofford)

2 credits; 2nd semester (Wofford)

154—SEMINAR. A survey of the field of library science through a brief study of the modern library movement and its history; of library agencies and media; of outstanding personalities in the field; of standards for professional training and certification; of current economic, social and educational problems of special interest to the librarian. General discussion with special reports on assigned topics. *Prerequisites: 133a, 126; 150a* 2 credits; 2nd semester
desirable. (Semmons)

ROMANCE LANGUAGES AND LITERATURES

FRENCH

109a—FRENCH LITERATURE OF THE NINETEENTH CENTURY. A survey of the literature of the period. Frequent lectures on the various authors studied.

3 credits; 1st semester (Ryland)

[OFFERED 1939-40]

109b—FRENCH LITERATURE OF THE NINETEENTH CENTURY. Continuation of 109a.

3 credits; 2nd semester (Ryland)

[OFFERED 1939-40]

110a—FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. A survey of the literature except for Moliere, Corneille and Racine.

3 credits; 1st semester (Ryland)

[GIVEN 1938-39]

110b—FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. The plays of Moliere, Corneille and Racine.

3 credits; 2nd semester (Ryland)

[GIVEN 1938-39]

113a—ADVANCED FRENCH GRAMMAR. A study of the grammar and syntax of the French language. Also an introduction to French etymology.

3 credits; 1st semester (Ryland)

[OFFERED 1939-40]

113b—ADVANCED FRENCH GRAMMAR. Continuation of 113a.

3 credits; 2nd semester (Ryland)

[OFFERED 1939-40]

114a, b, c, d, etc. INDEPENDENT WORK IN ROMANCE LANGUAGES. Independent work designed to meet the individual needs of students after consultation with the staff.

3 credits; both semesters (Staff)

[OFFERED EVERY YEAR]

115a—FRENCH LITERATURE OF THE EIGHTEENTH CENTURY. A survey of the literature; the works of representative writers; written reports and assigned readings.

3 credits; 1st semester (Holmes)

[GIVEN 1938-39]

115b—FRENCH LITERATURE OF THE EIGHTEENTH CENTURY. Continuation of 115a.

3 credits; 2nd semester (Holmes)

[GIVEN 1938-39]

116a—FRENCH LITERATURE OF THE TWENTIETH CENTURY. A study of representative authors and their works; comparison of pre and post war writers.

3 credits; 1st semester (Horsfield)

[OFFERED 1939-40]

116b—FRENCH LITERATURE OF THE TWENTIETH CENTURY. Continuation of 116a.

3 credits; 2nd semester (Horsfield)

[OFFERED 1939-40]

201a—FRENCH LITERATURE OF THE RENAISSANCE. A study of the works of Villon, Marot, Rabelais, Calvin, Montaigne, Ronsard and others.

3 credits; 1st semester (Ryland)

[OFFERED 1939-40]

201b—FRENCH LITERATURE OF THE RENAISSANCE. Continuation of 201a.

3 credits; 2nd semester (Ryland)

[OFFERED 1939-40]

202a—OLD FRENCH. A study of the grammar and syntax of Old French. Readings from the Chanson de Roland.

3 credits; 1st semester (Holmes)

[OFFERED 1939-40]

202b—OLD FRENCH. Continuation of 202a.

3 credits; 2nd semester (Holmes)

[OFFERED 1939-40]

203a—ADVANCED PHONETICS. A study of the phonetics of the Romance Languages with special attention to French. A course to prepare teachers of phonetics.

3 credits; 1st semester (Schick)

[OFFERED 1938-39]

203b—ADVANCED PHONETICS. Continuation of 203a.

3 credits; 2nd semester (Schick)

[OFFERED 1938-39]

SPANISH

104a—SPANISH LITERATURE OF THE SEVENTEENTH CENTURY. Spanish novel and drama of the sixteenth and seventeenth centuries. 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.

3 credits; 1st semester (Server)

[OFFERED 1939-40]

104b—SPANISH LITERATURE OF THE SEVENTEENTH CENTURY. Continuation of 104a.

3 credits; 2nd semester (Server)

[OFFERED 1939-40]

S106a—SPANISH LITERATURE OF THE TWENTIETH CENTURY. A study of the authors of this century.

2 credits; 1st semester (Holmes)

[OFFERED SUMMER SCHOOL]

S106b—SPANISH LITERATURE OF THE TWENTIETH CENTURY. Continuation of 106a.

2 credits; 2nd semester (Holmes)

[OFFERED SUMMER SCHOOL]

112a—SPANISH LITERATURE OF THE NINETEENTH CENTURY. Spanish novel and drama of the nineteenth century; syntax and composition.

3 credits; 1st semester (Server)

[GIVEN 1938-39]

112b—SPANISH LITERATURE OF THE NINETEENTH CENTURY. Continuation of 112a.

3 credits; 2nd semester (Server)

[GIVEN 1938-39]

II. SOCIAL SCIENCES

ARCHÆOLOGY (See Biological Sciences.)

COMMERCE (See Economics and Commerce.)

COMMERCIAL EDUCATION (See Education.)

ECONOMICS AND COMMERCE

102—LABOR PROBLEMS. A study of the labor market in its industrial setting, including such directly related topics as immigration, unemployment, and labor organizations.

Prerequisite: Course 1. 3 credits; 1st semester (Carter)

103—TRANSPORTATION. Railways, waterways, highways, airways. Rates, service, management, regulation.

Prerequisite: Course 1. 3 credits; 2nd semester (Sullivan)

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.

Prerequisite: Course 1. 3 credits; 1st semester (Sullivan)

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.

Prerequisite: Course 1. 3 credits; 1st semester (Wiest and Carpenter)

106a—ADVANCED ACCOUNTING. Principles of valuation and income determination. Statement arrangement. Corporation accounting. Manufacturing accounts. Advanced partnership accounting.

Prerequisites: Courses 7a and 7b. 3 credits; 1st semester (Haun and Beals)

106b—ADVANCED ACCOUNTING. Continuation of 106a. Accounting for installment sales, agencies and branches, ventures, and consignments. Accounting features of insolvent concerns and of consolidations and mergers. Estate accounting. Analysis of financial statements.

3 credits; 2nd semester (Haun and Beals)

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. Recitation, one hour; laboratory, four hours

3 credits; 1st semester (Palmer)

109a—BUSINESS LAW. A survey of the principles of contracts, sales, bills and notes, and that portion of the law of torts applicable to business practices.

3 credits; 1st semester (Haun and Pittman)

109b—BUSINESS LAW. Continuation of 109a.

3 credits; 2nd semester (Haun and Pittman)

110—BUSINESS CYCLES. The nature and characteristics of the economic factors which underlie the cyclical fluctuations in business conditions; the methods of business and investment forecasting.

Prerequisites: Courses 1 and 107. 3 credits; 2nd semester

(Palmer)

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 students are expected to do more work than the usual amount required per credit hour.

Prerequisite: Course 1.

2 credits; 1st semester

(Palmer and others)

112b—INDIVIDUAL WORK IN ECONOMICS. Continuation of 112a.

2 credits; 2nd semester (Palmer and others)

113—AUDITING. 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. 3 credits; 2nd semester

(Haun and Beals)

115—VALUE AND DISTRIBUTION THEORY. The major emphasis is on current theory.

3 credits; 1st semester (Sullivan)

117—CORPORATION FINANCE. Stocks and bonds, sound fiscal principles concerning the issue of securities, the management of the corporate income, the disbursement of dividends, the creation of sinking funds, and reorganization procedure.

Prerequisites: Commerce 1, 7a, 3 credits; 2nd semester

7b and 9.

(Lawrence and others)

118—COST ACCOUNTING. The place of cost accounting in the general field of accounting, special records and cost statistics, application to particular businesses.

Prerequisites: Courses 7a, 7b.

3 credits; 1st semester

(Haun and Beals)

119—RETAIL MERCHANDISING. Selecting a business location, internal layout, departmentalization, merchandising control, store policies toward the public, training and management of personnel, and related subjects.

Prerequisites: Courses 1, 10. 2 credits; 1st semester (McIntyre)

124—STATE AND LOCAL TAXATION. Classified property taxes; separation of sources of revenue, taxation of banks, forests, public utilities, mines, and rural and urban real estate; income, inheritance and sales taxes. Open only to seniors and graduate students.
Prerequisite: Course 1. 3 credits; 2nd semester (Martin)

125—ADVANCED ECONOMIC HISTORY OF EUROPE. An advanced study of population, immigration, labor, agriculture, industry, and finance and the effects of the various lines of development upon national life.
Not open to students who have had Course 2 except when doing graduate work. 3 credits; 1st semester (Jennings)

126—ECONOMICS OF PUBLIC UTILITIES. No credit for this course can be given if the student has credit for Political Science 158. Growth and development of public utilities; valuation; rate-making; financing; the holding company; regulation; current problems; accounting.
Prerequisite: Course 1. 3 credits; 1st semester (Carter)

127—INTERNATIONAL ECONOMIC POLICIES. Modern fallacies respecting foreign trade; free trade; protectionism; preferential tariffs; colonial tariff policies; dumping; commercial treaties; control of raw materials; encouragement of shipping; international investments and the movement of capital; international debts; reparations.
Prerequisite: Course 1. 3 credits; 2nd semester (Sullivan)

129—CREDITS AND STATEMENT ANALYSIS. The theory underlying credit-granting; credit administration; analysis and interpretation of financial statements.
Prerequisite: Course 7a. 2 credits; 1st semester (Haun and Beals)

130—LABOR LEGISLATION. 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: Course 1. 3 credits; 2nd semester (Carter)

131—INVESTMENTS. The general field of investments. Emphasis is placed upon problems which face the investor rather than the seller of securities. 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.
Prerequisites: Courses 105 and 117. 2 credits; 2nd semester (Palmer)

132a—C. P. A. PROBLEMS. This course is designed to prepare students for C. P. A. examinations. Advanced accounting theory is stressed through the study of a wide range of problems.

Prerequisites: Courses 106a and 106b. 3 credits; 1st semester

(Haun and Beals)

132b—C. P. A. PROBLEMS. Continuation of 132a.

3 credits; 2nd semester (Haun and Beals)

133—INCOME TAX PROCEDURE. The preparation of income tax returns for individuals and corporations of all classes and a practical application of principles of accounting.

Prerequisites: Courses 106a, 106b. 3 credits; 1st semester

(Haun and Beals)

134—ADVANCED ECONOMIC HISTORY OF THE UNITED STATES. An advanced study of 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 students who have

3 credits; 2nd semester

had Course 3 except when

(Jennings)

doing graduate work.

135—ADVANCED MARKETING. The literature and problems in the retail distribution of consumers' goods; wholesale distribution of consumers' goods; industrial goods; sales organization; sales promotion and advertising and price policies.

Prerequisite: Course 10.

3 credits; 2nd semester (Moore)

136—SALES MANAGEMENT. The case method will be used, supplemented with outside reading and written reports.

Prerequisite: Course 11 or the

3 credits; 1st semester

consent of the instructor.

(McIntyre)

137—PROBLEMS IN MANAGEMENT. Emphasis is placed upon factory management, but an attempt is made to coordinate managerial aspects of business in its entirety. Approximately half of the semester is devoted to the consideration and criticism of business reports dealing with various managerial problems and prepared by members of the class.

*Open only to seniors of the College
of Commerce who are required*

3 credits; 2nd semester

to take either this course or

(Carter)

138, and to graduate students

who have had the necessary

prerequisite training.

138—INVESTIGATION OF BUSINESS PROBLEMS. The method of surveying, analyzing and actual investigation of problems of business management. It is intended for mature students who have had a thorough training in commerce and who are capable of doing research

work under the guidance of the instructor. The work will involve the statistical analysis of data secured through interviews, questionnaires and otherwise, and the use of the results in determining a satisfactory solution.

Open only to seniors of the College of Commerce who are required to take either this course or 137, and to graduate students who have had the necessary prerequisite training. Prerequisite Course 107. 3 credits; 2nd semester (Palmer)

140—ADVERTISING CAMPAIGNS. The procedure necessary for developing an advertising campaign; a study of successful advertising campaigns as used by leading business houses throughout the country; and the planning and execution of an advertising campaign in conjunction with some local business house. The advertising campaign worked out by the student will be checked and tested for its effectiveness.

Prerequisite: Course 11, Psychology 5, or the consent of the instructor. 3 credits; 2nd semester (McIntyre)

141—MANAGERIAL STATISTICS. An advanced practical course in the use of charts and graphs by the business manager; logarithmic, double logarithmic and other rulings, pin maps, organization charts, work schedule graphs, computation graphs and nomographs, plotting the error area of trends, construction of three-dimensioned surfaces, etc. Data will be drawn from the fields of accounting, advertising, personnel work, credit granting, purchasing, scheduling and the like.

Prerequisite: An elementary course in statistics. 3 credits; 1st semester (Palmer)

142—INDEX NUMBERS. The problems of sampling, selection of formula, and weighting in the construction of index numbers; a study of the construction and use of the common index numbers of prices and production.

Prerequisite: An elementary course in statistics. 2 credits; 2nd semester (Palmer)

143—LIFE INSURANCE. Economics of life insurance; organization and control; special forms of life insurance; fundamental principles of rate-making.

Prerequisite: Course 1. 3 credits; 1st semester (Carpenter)

144—PROPERTY AND CASUALTY INSURANCE. Public control; nature of contracts; analysis of reserve functions and rate-making processes.

Prerequisite: Course 1. 3 credits; 2nd semester (Carpenter)

145—PROBLEMS IN OFFICE MANAGEMENT. The theories and principles underlying office management and control. The course is designed for superintendents of schools, high school principals, registrars, office workers, and others.

3 credits; 1st semester (Lawrence)

147—AMERICAN BUSINESS LEADERS. Biographical sketches of a selected list of men including their business achievements and their relationships to the economic and social life of their time.

2 credits; 1st semester (Jennings)

148—EUROPEAN BUSINESS LEADERS. Biographical sketches of a selected list of men including their business achievements and their relationships to the economic and social life of their time.

1 credit; 2nd semester (Jennings)

149—MARKET ANALYSIS. Training in the application of scientific method to research in fields of marketing. A major marketing investigation will be conducted by the class.

Prerequisites: Com. 10 and a course in statistics. 3 credits; 1st semester (McIntyre)

202a-f—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.

1 to 3 credits; both semesters (Palmer and others)

203—HISTORY OF ECONOMIC THOUGHT. A survey of the history of economic thought from the ancient period to about the end of the Classical School.

Prerequisite: Course 1. 3 credits; 1st semester (Wiest)

204—ECONOMIC HISTORY OF THE UNITED STATES PRIOR TO 1860. An examination of original sources and class reports; intensive investigation of all the subjects in detail prior to 1860.

Not open to students who have taken Course 134 for graduate credit. 2 credits; 1st semester (Jennings)

205—ECONOMIC HISTORY OF THE UNITED STATES SINCE 1860. A continuation of Course 204, but may be taken independently.

Not open to students who have taken Course 134 for graduate credit. 2 credits; 2nd semester (Jennings)

206—MUNICIPAL FINANCE. The budget problems of municipalities are analyzed; the debt policies critically examined; and the auditing and reporting plans compared and evaluated. Problems of taxation are dealt with incidentally. Each individual conducts one or more independent investigations.

3 credits; 1st semester (Martin)

207—LITERATURE OF PUBLIC FINANCE. Several of the great masterpieces of government finance are read critically. Each student makes a careful study of one system or of the development of one idea. A reading knowledge of French or German is desirable, but not necessary.

3 credits; 1st semester (Martin)

208—ADVANCED ECONOMIC THEORY. A critical examination of current literature on economic problems and policies.

Prerequisite: Course 1.

3 credits; 1st semester

(Sullivan)

209—COMPARATIVE BANKING AND MONETARY SYSTEMS. A comparative study of banking systems and monetary policies, in the principal countries of the world; emphasis is placed upon present-day organization; the commercial bank with its monetary functions is the main theme of the course, but brief surveys of investment banking systems are also attempted.

3 credits; 2nd semester (Carpenter)

210—RESEARCH STATISTICS. For those who wish to become connected with government, state and industrial research bureaus; particularly devoted to the study of the practical applications of probable error formulæ, in estimating the most profitable size of samples. Applications will be made in the fields of frequency series, correlation problems, and time series.

Prerequisites: An elementary course in statistics and consent of instructor.

3 credits; 2nd semester

(Palmer)

211—ADVANCED MONEY AND BANKING. A general survey of the subject is attempted with the emphasis upon its historical and theoretical aspects.

3 credits; 2nd semester (Wiest)

215—SURVEY OF ECONOMIC THEORY SINCE THE AUSTRIAN SCHOOL. This course is virtually a continuation of Course 203

3 credits; 2nd semester (Sullivan)

EDUCATIONAL PSYCHOLOGY (See Education.)

FARM ECONOMICS (See Agriculture.)

HISTORY

THE MASTER'S DEGREE IN HISTORY

Students should submit evidence of good undergraduate preparation in the specific subject in which they propose to take the degree. In general, twenty semester hours in History will suffice.

The course should be planned in advance with some unity of purpose and coherence in arrangement.

Most of the courses should be of a more advanced type than ordinary undergraduate courses, and at least one should be of the seminar type, with some training in methods of graduate study.

Of the total number of course hours, sixteen will be expected when a minor is offered, in addition to the thesis.

A creditable thesis is required in all cases, giving evidence of ability to investigate a specific topic, with a critical bibliography. The examination will include courses, thesis, and general knowledge of related material.

THE DOCTORATE IN HISTORY

Those who seek the doctorate in History should follow carefully the general directions governing the subjects of residence and courses as stated in the first part of this Bulletin.

The *applicant* does not become a *candidate* "until he has passed the qualifying examinations, satisfied the language requirements, and made formal application to be so enrolled".

All further work for the doctorate in history is under the direction of a committee composed of members of the staffs of the candidate's major and minor departments appointed by the Dean of the Graduate School. The chairman will be the major professor under whose direction the candidate expects to write his dissertation. The student should consult this person at his earliest convenience. This committee with the student will outline his course of study, advise with him throughout his residence, conduct the comprehensive examination, and generally supervise the writing of his dissertation.

COMPREHENSIVE EXAMINATION

At the completion of his residence work, or sooner if his advisory committee shall so direct, the candidate will be required to take a *comprehensive examination* upon his fields of study in his major and minor departments. The comprehensive examination will consist of written or oral examinations of eight hours' duration upon his fields of history and of two to three hours in those of his minor departments. There will also be a general oral examination of not less than two hours. Throughout, the candidate will be expected to show that his knowledge is of a definite and thorough character.

FINAL EXAMINATION ON THESIS AND ITS FIELD

After acceptance of the dissertation by his advisory committee and by the Dean of the Graduate School the candidate will be expected orally to defend his dissertation before the committee provided by the Dean of the Graduate School for that purpose.

History is generally viewed as falling into certain well defined periods or movements. For this purpose the fields of history have been assigned to the following four divisions:

DIVISION I

- The Ancient World.
- The Middle Ages.
- The Renaissance and Reformation.

DIVISION II

- Modern Europe.
- English History.
- The British Empire.
- The Expansion of Europe.

DIVISION III

- The Colonies and the United States through Reconstruction.
- Recent United States.
- Regional History.

DIVISION IV

- The Far East.
- History of Latin America.
- The History of Culture (Thought, Science, Religion).

With his advisory committee the candidate will select four fields usually from divisions I, II and III, two of which should be selected from that division in which the field of his dissertation lies, and one each from two other fields. The candidate may substitute with the approval of his committee for one of these a field from division IV.

The extent and content of his work in his minor department will be determined by the candidate's advisory committee after consultation with the departments concerned.

The following courses are offered by the Department:

100a—THE DIPLOMACY AND FOREIGN POLICY OF THE UNITED STATES TO 1860. A survey designed to acquaint the student with the principles of American foreign policy and their historical evolution in practice.

3 credits; 1st semester (Dupre)

100b—THE DIPLOMACY AND FOREIGN POLICY OF THE UNITED STATES SINCE 1860. A continuation of course 100a.

3 credits; 2nd semester (Dupre)

105—COLONIAL AMERICA. A study of the beginnings of the English colonies, the colonial background, political, social and economic development, extension of their frontiers, intercolonial wars, and external relations with the Dutch, French and Spanish. Emphasis on imperial policies and imperial control and the controversies arising therefrom.

Prerequisite: One year of American or English history in College. 3 credits; 2nd semester (Knapp)

106a—COLONIAL LATIN AMERICA. A survey of the founding and development of the Latin American Colonies and their struggle for independence.

2 credits; 1st semester (Knapp)

106b—LATIN AMERICAN REPUBLICS. This course will include a study of the political, economic, and social institutions, and problems of the Latin American Republics from the attainment of independence to the present.

2 credits; 2nd semester (Knapp)

114—THE RENAISSANCE IN THE SOUTH. A study of the Italian Renaissance from 1300 to 1500. The southern 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.

3 credits; 1st semester (Tuthill)

115—THE RENAISSANCE IN THE NORTH. This course will properly follow Course 114 in tracing the awakening of the new spirit in France, England, and Germany, and in sketching the background of the Reformation period.

Prerequisites: History 4a-b.

3 credits (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.

3 credits; 1st semester (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.

3 credits; 2nd semester (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, invention and discoveries. Reports on current literature and assigned reading on a liberal scale.

3 credits; 2nd semester (Tuthill)

131a—ENGLISH CONSTITUTIONAL HISTORY TO 1603.

3 credits; 1st semester (Hall)

131b—ENGLISH CONSTITUTIONAL HISTORY SINCE 1603.

3 credits; 2nd semester (Hall)

135a—THE BRITISH EMPIRE TO 1860. Review of the various elements affecting Great Britain and her Empire between 1783 and 1860: The Industrial Revolution; The French Revolution; Development of British Sea Power. The early growth and development of Canada, Australia, New Zealand, South Africa, and India. Lectures, class discussions, readings, reports. Three hours a week.

3 credits (Hall)

135b—THE BRITISH EMPIRE SINCE 1860. A continuation of 135a. Great Britain and the growth of the Dominions and the Commonwealth since 1860. Particular attention given to the history of the Canadian Dominion and the extension of the idea to other portions of the Commonwealth; their relations with the rest of the World. Three hours a week.

3 credits (Hall)

138—BRITISH SOCIAL HISTORY DURING THE TUDOR PERIOD, 1485-1603. A study of British life, manners, and customs in town and country. Particular emphasis will be placed upon the Age of Elizabeth, with political events subordinated to social changes. Lectures, discussions, and reports. Two hours a week.

2 credits (Hall)

140a, b, c, d—INDIVIDUAL WORK. Under special conditions selected students may investigate special problems, making weekly reports to the instructor.

2 credits (Staff)

147—RECENT HISTORY OF THE UNITED STATES. An intensive study of the principal movements and episodes in the history of the people of the United States from the Spanish-American War to the present.

Prerequisite: One year of American history. 3 credits; 2nd semester (Knapp)

156—AMERICAN CONSTITUTIONAL HISTORY TO 1860. A study of the growth and theory of the Constitution from its beginning to 1860.

Prerequisite: 5a or equivalents. 3 credits

166a—DIVISION AND REUNION, 1850-1877. An intensive study of sectionalism in the United States from 1850 to 1877. The political, military, economic, industrial and educational aspects of the period of the Civil War, and Reconstruction. Emphasis on the problems of the Border States.

3 credits (Knapp)

170—THE ERA OF LOUIS XIV. A study of the general conditions of Western Europe from 1648 to 1715, and particularly of the institutions and power of France under the leadership of Louis XIV as reflected in the life and culture of Europe and her colonies.

Prerequisite: One year of European history. 3 credits (Tuthill)

171—THE EIGHTEENTH CENTURY. The 18th century in Europe. A study of the benevolent despots, their times and circumstances, their significance in Modern Europe.

Prerequisite: Course 4a or equivalent. 2 credits (Lunde)

175—THE SUCCESSION STATES. A study of the post-war politics and culture of Middle Europe and the Near East.

3 credits (Dupre)

176—THE THIRD FRENCH REPUBLIC. A study of the parties, politics, administration, diplomacy, economy, social movements, and general culture of France from 1870 to the present. A reading knowledge of French will be helpful to graduate students. Lectures, readings, reports, and discussions.

3 credits (Dupre)

177—GERMANY SINCE 1870. A study of Germany under Bismarck, The Weimar Republic, and Hitler.

3 credits (Dupre)

[FIRST OFFERED 1939]

180—HISTORY OF THE NEW SOUTH. The evolution of southern life and society, agrarian politics, relationships with other sections, industrial growth, and new leadership.

Prerequisite: History 5b. 3 credits (Clark)

[GIVEN 1936-37]

184—THE GEOGRAPHIC BASIS OF AMERICAN HISTORY. A study of the relationship of geography to history and the influence of physiography upon the settlement and growth of various regions of the Americas.

Prerequisite: Ten semester hours of American history. 1 credit (Knapp)

190a—THE FAR EAST TO 1900. The contacts of Europe and America with the Far East (China, Korea, Japan, eastern Siberia and the Philippines) to the close of the nineteenth century.

Prerequisite: Course 4a or equivalent. 3 credits (Clyde)

190b—THE FAR EAST SINCE 1900. A continuation of Course 190a.

Prerequisite: Course 4b. 3 credits (Clyde)

194—THE UNITED STATES IN THE PACIFIC AND THE FAR EAST SINCE 1898. This course studies policies which resulted in annexation of Hawaii and the Philippines, the announcement of the so-called open door policies and the integrity of China, with their historical development. It concludes with the Stimson doctrine of non-recognition.

3 credits (Clyde)

COURSES IN THE "200" GROUP

These courses are for graduate students only. They are content courses presented by the lecture and discussion method, and as such are distinct in character from the "300" group of courses which are concerned with problems and practice of research.

202—THE AMERICAN REVOLUTION.

3 credits (Knapp)

206—AMERICAN CONFEDERATION.

3 credits (Knapp)

226—THE OLD SOUTH.

3 credits (Knapp)

242—ADVANCED SEMINAR IN HISTORY OF KENTUCKY. The development of Kentucky as a western commonwealth. Emphasis on economic and political phases from the 18th century to the present, with writing of papers based upon research among documents and other source material.

Prerequisites: Courses 5a and 40, and consent of instructor. 2 credits; 2nd semester (Clark)

247a, b, c, d—SEMINAR IN RECENT UNITED STATES HISTORY. Intensive studies in the political, social, and cultural history of the United States since 1914. Different topics will be stressed in rotation. 2 credits

280—EUROPEAN HISTORIOGRAPHY. A study of the principal collections of material bearing on European history together with guides to books and periodicals in various fields. Periods will be chosen according to the needs of students. Lectures, discussions, problems.

2 credits; 1st semester (Tuthill)

281—AMERICAN HISTORIOGRAPHY. A study of the principal historians of United States and their works; periodical and monographic literature; public documents and collections of source materials; guides to and methods of historical investigations. Lectures, discussions, problems.

2 credits; 2nd semester (Knapp)

COURSES IN THE "300" GROUP

SEMINARS.—Basically research in character. These are not content courses. They provide laboratory training in historical research (collection and critical analysis of bibliography, note-taking and organization of materials, and the presentation of a properly documented thesis). It is desirable that the student take the Senior Seminar before enrolling in "300" courses. Three hours credit. Two class hours. One conference hour.

300a, b, c, d—SEMINAR IN AMERICAN DIPLOMACY

3 credits (Clyde)

315a, b, c, d—HENRY CLAY AND HIS TIMES.

3 credits (Knapp)

320a, b, c, d—ORIGINS OF THE GREAT WAR.

3 credits (Tuthill)

HISTORY OF EDUCATION (See Education.)

MARKETS AND RURAL FINANCE (See Agriculture.)

LAW (See Law.)

PHILOSOPHY

101a—HISTORY OF PHILOSOPHY. A critical survey of Greek Philosophy and the Philosophy of the Middle Ages.

3 credits; 1st semester (Kuiper)

[GIVEN 1938-39]

101b—HISTORY OF PHILOSOPHY. A critical survey of modern Philosophy from the Renaissance to contemporary times.

3 credits; 2nd semester (Kuiper)

[GIVEN 1938-39]

110—THE MAKING OF THE MODERN MIND. A survey of the intellectual background of the present age.

3 credits (Kuiper)

[NOT OFFERED 1939-40]

111a—CONTEMPORARY PHILOSOPHY. A study of contemporary realism, idealism, pragmatism, etc., with special reference to the writings of Bertrand Russell, S. Alexander, F. H. Bradley, B. Bosanquet, Wm. James, John Dewey, Henri Bergson, and G. Santayana.

3 credits (Kuiper)

[OFFERED 1939-40]

111b—CONTEMPORARY PHILOSOPHY. Continuation of 111a.

3 credits (Kuiper)

[OFFERED 1939-40]

115—INTERMEDIATE LOGIC. A second course in Logic, constituting an introduction to Symbolic Logic and its relation to traditional logic and the general problems of philosophy.

3 credits (Kuiper)

[OFFERED 1939-40]

118—PLATO AND ARISTOTLE. A study in English of the chief dialogues of Plato, and of Aristotle's *Ethics*, *Politics*, and *Metaphysics*

3 credits 2nd semester (Kuiper)

[OFFERED 1939-40]

120—GREAT RELIGIONS OF THE WORLD.

3 credits; 1st semester (Kuiper)

[OFFERED 1939-40]

201a—SEMINAR IN PHILOSOPHY. One two-hour meeting a week for discussion of current developments in Philosophy as found in recent books as well as in periodicals.

1 credit; 1st semester (Kuiper)

[OFFERED EVERY YEAR]

201b—SEMINAR IN PHILOSOPHY. Continuation of 201a.
1 credit; 2nd semester (Kuiper)

[OFFERED EVERY YEAR]

210a—TYPES OF LOGICAL THEORY. An intensive study of some of the outstanding contributions to logical theory, such as those of W. E. Johnson, Whitehead and Russell, or F. H. Bradley.

3 credits (Kuiper)

[OFFERED 1939-40]

210b—TYPES OF LOGICAL THEORY. Continuation of 210a.
3 credits (Kuiper)

[OFFERED 1939-40]

NOTE.—Other courses such as Epistemology, Æsthetics, Social Philosophy, and special periods in the History of Philosophy will be given from time to time.

PHILOSOPHY OF EDUCATION (See Education.)

POLITICAL SCIENCE

Graduates of accredited colleges may become candidates for a master's degree in Political Science. Students who are deficient in social science background must make up their deficiencies by taking such additional courses as may be recommended by the Department. At least one course each in Political Theory and Constitutional Development is required of every candidate. This requirement will be waived in the case of candidates who have had adequate undergraduate courses in these two fields. The graduate work must include at least three of the six fields of political science listed below. At least fifteen of the twenty-four hours required for the master's degree must be taken in political science. The remaining hours may be taken in one or more related fields, upon approval of the major professor. Six hours of the work in political science must be in courses open only to graduate students.

Admission to candidacy for the doctor's degree in Political Science is governed by the regulations of the Graduate School, which require a qualifying examination during the second year of graduate work. Of the total credit hours presented by the candidate at least twelve hours must be in courses not open to undergraduates. At the end of his course work the candidate must pass a preliminary written and oral examination in the following fields: Political Parties and Public Opinion, Public Administration, Theory, Comparative Government, Public Law and International Law and Diplomacy, with the exception in each case of the field in which the candidate writes his dissertation. A minor in a related field may be substituted for two of the six fields of political science, subject to the approval of the other department and of the candidate's committee. Candidates for the doctor's degree in a related department desiring a minor in political science must pass

a preliminary examination in two of the six fields of political science. At least six hours of the work in political science must be in courses not open to undergraduates. Candidates for either a major or a minor in political science are expected to have a knowledge of the related social studies as a background for the work in political science.

Upon completion of the above requirements the candidate must take an oral examination covering primarily the dissertation and the field in which the dissertation falls.

I. POLITICAL PARTIES AND PUBLIC OPINION

170—POLITICAL PARTIES. An analysis of public opinion and pressure groups; a survey of the history, organization methods and functions of political parties in the United States; first hand studies of the individual's participation in government.

3 credits; 1st semester (Shannon)

[OFFERED EVERY YEAR]

173—PUBLIC OPINION. The concept of public opinion; public opinion as an agency of political control; influence of the press, radio and other means of influencing public opinion; propaganda technique and control; competition of pressure groups for political influence.

3 credits; 2nd semester and summer (Shannon)

[OFFERED EVERY YEAR]

Related Courses in Other Departments

Psychology 104—Social Psychology.

Sociology 15—Social Control.

II. PUBLIC ADMINISTRATION

172—KENTUCKY GOVERNMENT AND CONSTITUTION. An intensive study of government and administration in Kentucky. The course is intended primarily for teachers of civics in the secondary schools and for teachers of government in colleges.

3 credits; summer (Manning)

[OFFERED 1939-40]

174—PUBLIC WELFARE ADMINISTRATION. An intensive study of public welfare agencies of the state and local units, with emphasis on the problems of relief, rehabilitation, public and private control, and unified administration.

3 credits; 2nd semester (Manning)

177a—PRINCIPLES OF PUBLIC ADMINISTRATION. A functional study of governmental administration, with emphasis on the theory and practice of administration, with evolution of administrative organization, and staff functions of government, including personnel and financial administration.

3 credits; 1st semester (Manning)

177b—PUBLIC ADMINISTRATION. A continuation of Political Science 177a, with emphasis on the line functions of government, including the protection of life and property, judicial administration, law enforcement, public health, welfare, education, conservation and business regulation.

3 credits; 2nd semester (Manning)

Related Courses in Other Departments

Economics 102—Labor Problems.

Economics 104—Public Finance.

Economics 124—State and Local Taxation.

Economics 130—Labor Legislation.

Law 153—Taxation.

Law 167—Administrative Law.

Psychology 112—Personnel Administration.

Sociology 107—Community Welfare Work.

Sociology 112—Community Organization.

III. THEORY

171a—EARLY POLITICAL THEORY. The political theories of Plato, Aristotle, Roman Political Thought, Thomas Aquinas, Dante, Machiavelli, Bodin, Grotius, More, Bacon, Harrington, Filmer, Hobbes, Locke, Spinoza, Montesquieu, Rousseau.

3 credits; 1st semester (Shannon)

[OFFERED EVERY YEAR]

171b—MODERN POLITICAL THEORY. The theories of the American and French Revolutions, the English Utilitarians, Democratic Political Theory, Socialism, Fascism, Anarchism, Syndicalism, Guild Socialism, Communism.

3 credits; 2nd semester (Shannon)

[OFFERED EVERY YEAR]

Related Courses in Other Departments

Philosophy 101a and 101b—History of Philosophy.

Philosophy 110a—Making of the Modern Mind.

IV. COMPARATIVE GOVERNMENT

155a—COMPARATIVE GOVERNMENT — PARLIAMENTARY DEMOCRACIES. A study of the government of England, Ireland and the British self-governing dominions.

3 credits; 1st semester and summer (Trimble)

[OFFERED 1939-40]

155b—COMPARATIVE GOVERNMENT—CONTEMPORARY DICTATORSHIPS. A study of the government of Europe including France and Switzerland and the dictatorship of Italy, Germany and Russia.

3 credits; 2nd semester and summer (Trimble)

[OFFERED 1939-40]

V. PUBLIC LAW

159a—AMERICAN CONSTITUTIONAL DEVELOPMENT, 1787-1868. Chronological survey of the making of the constitution and its interpretation through principal statutes and judicial decisions; some emphasis upon the economic and social interests which influenced this growth.

3 credits; 1st semester (Trimble)

[OFFERED EVERY YEAR]

159b—AMERICAN CONSTITUTIONAL DEVELOPMENT. From the adoption of the Civil War Amendments to the present time. Congressional policies embodied in social-economic legislation; doctrines developed by the Supreme Court. Analysis and criticism of chief cases on "due process", congressional powers and changes in the federal systems.

3 credits; 2nd semester (Trimble)

[OFFERED EVERY YEAR]

176—LEGISLATION. A functional study of legislative bodies and the process of legislation. Emphasis is placed on the organization of legislative assemblies, the operation of the committee system, the actual process of enactment, including the drafting of bills, and the external controls over legislation.

3 credits; 1st semester (Manning)

[OFFERED 1939-40]

Related Courses in Other Departments

History 131a-131b—English Constitutional History.

Law 149—Municipal Corporations.

Law 161a-161b—Constitutional Law I and II.

VI. INTERNATIONAL LAW AND DIPLOMACY

101—LATIN AMERICAN RELATIONS. The relations between the United States and the Latin American countries, the Monroe Doctrine, Pan-Americanism, Pan-Hispanism, Latin America and the League of Nations.

3 credits; 2nd semester (Blanding)

[OFFERED 1939-40]

150—INTERNATIONAL LAW. Sources and sanctions of international law, recognition, intervention, jurisdiction, nationality, protection of citizens abroad, diplomatic intercourse of states, the making, termination and interpretation of treaties, the treatment of aliens and international claims.

3 credits; 2nd semester (Vandenbosch)

[OFFERED EVERY YEAR]

160—AMERICAN FOREIGN RELATIONS. Chief principles and problems of American Foreign policies; the part of the House, the Sen-

ate, the Constitution and the President in the initiation, conduct and control of foreign policies; the organization of the Department of State, the selection of personnel, the status and duties of foreign service officers.

3 credits; 2nd semester (Vandenbosch)

[NOT OFFERED 1939-40]

165—WORLD POLITICS. A study of diplomatic history before and after the war with particular stress on the importance of alliances, imperialism, nationalism, militarism, and secret diplomacy. The latter part of the course deals with the development of international conferences, the League of Nations and the recent foreign policy of the important nations.

3 credits; 2nd semester (Blanding and Vandenbosch)

[OFFERED EVERY YEAR]

168—GOVERNMENTS AND POLITICS OF EASTERN ASIA. An introductory study of the political institutions of China, Japan, the Philippines, the Dutch East Indies and India. Constitutional principles, governmental organization, the party systems, current political issues and contemporary problems of international relations.

3 credits; 1st semester (Vandenbosch)

[OFFERED 1939-40]

Related Courses in Other Departments

Economics 127—International Economic Policies.

History 100a-100b—The diplomacy and foreign policy of the United States.

History 190a-190b—The Far East.

History 120—The Twentieth Century.

Law 164—Conflict of Laws.

Courses Open Only to Graduate Students

202—NATIONAL AND REGIONAL PLANNING. A survey of conditions leading to efforts at planning. A study of the theories and principles of planning; a detailed investigation of the regional life of selected areas.

3 credits; 1st semester (Shannon)

[OFFERED 1939-40]

204—INTERNATIONAL ORGANIZATION AND THE LEAGUE OF NATIONS. Social and economic factors leading to the establishment of international administrative organs, the Mandates System, the International Labor Organization, the League of Nations.

3 credits; 2nd semester (Vandenbosch)

[OFFERED EVERY YEAR]

205—FREEDOM OF THE SEAS. Belligerent and neutral rights at sea, violations of Maritime law during the World War, neutrality

and recent international legislation, current problems and possible solutions.

3 credits; 1st semester (Vandenbosch)

[OFFERED 1939-40]

206—SPECIAL PROBLEMS IN PUBLIC ADMINISTRATION. A research course in selected problems of public administration. The problems will be selected in accordance with the needs and desires of students registering for the course.

3 credits (Manning)

[OFFERED 1939-40]

210—SUPREME COURT AND POLITICS. Intensive study of the federal judiciary in the political and economic order. Factors in decision-making; personnel of the court; relations to other departments and processes of the national government and to the states; trends in the principle of judicial review.

3 credits; 2nd semester (Trimble)

[NOT OFFERED 1939-40]

211—THE CONSTITUTION AND CIVIL RIGHTS. The American conception of civil rights as expounded by the constitutional fathers and as interpreted by the courts. The social, economic and political aspects and implications of these rights. Special attention will be given to the decisions of the United States Supreme Court.

3 credits; 1st semester and summer (Trimble)

[OFFERED 1939-40]

213—FEDERAL CENTRALIZATION. A study of the shifting of power and control from the states to the federal government as a result of the economic and social development of the country and the resulting alteration of our constitutional system. Special attention will be given to the development of such provisions of the Constitution as the commerce clause, the taxing clause and of grants-in-aid and the more important measures of the New Deal.

3 credits; 1st semester (Trimble)

[GIVEN 1939-40]

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 of 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. The director and executive secretary of the University Personnel Bureau are also affiliated with the Department.

In order to provide training for guidance counselors in the schools and colleges of the State this department has arranged, in cooperation with the College of Education, a comprehensive plan for training in

this field including practice and research. In cooperation with the registrar it has also paid special attention to the preparation of registrars.

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

In cooperation with the Junior League of Lexington the Department has also established a Child Guidance Service which affords additional opportunities for the study and observation of both normal and maladjusted children.

The Department undertakes special research in business and industrial personnel problems and in the development and training of normal children. It is well equipped for experimental and statistical studies in these fields. Connected with the Department is a Kentucky Station of the Psychological Corporation, a national organization for conducting authoritative work in applied psychology.

The experimental laboratory is especially equipped for the objective determination of emotions, their relation to perceptual acts, sets, drives, conditioning, etc.

An animal behavior laboratory is also provided and equipped for class and research work on lower animals. Standardized strains of white rats are available.

Apparatus, test equipment, and library facilities are suitable for advanced work in the list of courses which follows. For graduate majors in the Department, it is assumed that the student has had fundamental training in general psychology, and in biological or social sciences.

104—SOCIAL PSYCHOLOGY. Description and explanation of social phenomena in terms of the original and acquired reaction systems of the individual. So-called types are characterized in respect to the social problems they present. Topics given special consideration: crowds, mob behavior, propaganda, and nationalism.

3 credits; 1st semester (Dimmick)

107—PSYCHOLOGICAL INTERPRETATION (Of the Unusual). Unusual human activities and experiences, including hypnotism, thought transference, spirit communications, psycho-therapy, and other sub-conscious phenomena are considered from the point of view of scientific evidence. An attempt is made to understand the conditions for creative work in literature, art and science.

3 credits; 1st semester (Beaumont)

110—EXPERIMENTAL PSYCHOLOGY. Experimental techniques and their application to present psychological problems. The first part

of the course acquaints the student with the standard apparatus in psychological laboratories and with the classical experiments the undertaking of which is important in modern psychology. The second part is a consideration of present psychological problems. The student selects one of these problems for detailed experimentation. Examples of such problems are: change of blood pressure with covert and overt expression of emotion; influence of tension upon perception; sensory discrimination. One hour lecture and four hours laboratory a week.

3 credits; 1st semester (White)

111—MENTAL MEASUREMENTS. An analysis and interpretation of individual and group tests of intelligence, aptitude, skill, and achievement. The history and significance of the testing movement; the construction and evaluation of group tests.

3 credits; 2nd semester (Asher)

112—PERSONNEL ADMINISTRATION. The functions of personnel work in business and industry. The selection and placement of employees, their training, supervision and motivation; the scientific study of work and fatigue. An introduction to personnel techniques is included. Given in alternate years with 221.

3 credits; 2nd semester (Miner)

113—PSYCHOLOGY OF LEARNING. An experimental study of the learning process with an analysis of types of learning. The lectures are centered around the topics of the nervous mechanism in learning and the conditioned response. In the laboratory, the conditions which affect learning are studied. Examples of such conditions are: the effect of drugs; the relation of length, amount and complexity of the material, and of the mode of attack to learning. One hour lecture and four hours laboratory a week.

3 credits; 2nd semester (White)

114—ABNORMAL PSYCHOLOGY. An intensive course on disturbed conduct and thinking are studied from both the theoretical and the practical points of view. The major psychoses and neuroses are given special consideration. Some opportunity for clinical observation is provided.

3 credits; 2nd semester (Dimmick)

115—GENETIC PSYCHOLOGY. Influence of hereditary factors in the development of human behavior, with a critical survey of the problem; and the evidence in connection with certain psychological traits such as musical and other special abilities, intelligence, insanity, and interests.

3 credits; 2nd semester (Newbury)

116—COMPARATIVE PSYCHOLOGY. Two hours of lectures, two hours of laboratory a week. A survey of the field of animal behavior with special reference to experimental technique. Opportunity for

research experience in an animal laboratory. Topics include problems of heredity and environment, activity, instinct, motivation, learning, sensory discrimination, and personality in sub-human species. Relationships to human problems indicated.

3 credits; 1st semester (Newbury)

120a-d—INDEPENDENT WORK IN PSYCHOLOGY. Designed for advanced students and graduates who undertake minor research problems to be conducted in regular consultation with the instructor. A minimum of six hours per week is required.

2 credits; both semesters (Miner and others)

121—STUDENT PERSONNEL. The methods of dealing with student personnel problems in college and high school, including the problems of selection, classification, sectioning of classes, grading, personal adjustment, motivation, guidance and vocational placement. The functions of a personnel officer in schools and colleges.

3 credits; 1st semester (Miner, Beaumont, or Croft)

122—PERSONALITY MALADJUSTMENTS. The course is intended primarily for social workers, teachers, and others, who deal with the common maladjustments which they are able to detect and help. The causes of such disturbances in the home, school or social surroundings will be emphasized. The early symptoms of more grave mental disorders will be treated from the standpoint of mental hygiene. The students will be acquainted with the background of scientific studies which is necessary for the interpretation of problem children and maladjusted adults. Examples of representative cases will supply some training for practical application of the principles discussed.

3 credits; 1st semester (Dimmick)

123—PRACTICE IN TESTING. This course trains the student in the techniques of administering, scoring and interpreting the group and individual intelligence and achievement tests most frequently employed in educational and psychological guidance. Opportunity will also be provided for the diagnosis and evaluation of aptitudes and emotional characteristics as these are related to adjustment problems. The practical rather than the theoretical aspects of diagnostic procedures are emphasized.

*Prerequisite: Psychology 111
or its equivalent.*

*3 credits; 2nd semester
(Dimmick)*

124—MENTAL HYGIENE. The objective of the course is to give a general orientation to the subject of mental hygiene, its historical development, its scope and relation to various sciences. The individual and cultural determinants of behavior will be discussed.

3 credits; 1st semester (Ratliff)

Courses Open Only to Graduate Students

201a—SEMINAR IN PSYCHOLOGY. One two-hour discussion each week of some current systematic concepts and research under way by graduate students and members of the staff.

1 credit; 1st semester (Miner and Staff)

201b, c, etc.—SEMINAR IN PSYCHOLOGY. Continuation of 201a. These numbers are provided for registration in succeeding semesters.

1 credit; either semester (Miner and the staff)

203a—PROBLEMS IN PSYCHOLOGY. Shorter research problems are registered under this number. A minimum of six hours per week is required in consultation with the instructor.

2 credits; 1st semester (Miner and others)

203b, c, etc.—PROBLEMS IN PSYCHOLOGY. Continuation of researches. These numbers are provided for registration in subsequent semesters.

2 credits; either semester (Miner and others)

210a—RESEARCH IN PSYCHOLOGY. Research or thesis work may be registered under this number. A minimum of nine hours per week is required on research conducted in consultation with the instructor.

3 credits; 1st semester (Miner and others)

210b, c, etc.—RESEARCH IN PSYCHOLOGY. Continuation of research. These numbers are provided for registration in succeeding semesters.

3 credits; either semester (Miner and others)

211—MENTAL WORK AND FATIGUE. A laboratory course. Four hours devoted to experiments and one hour discussion each week. Prerequisites, an advanced course in experimental psychology and elementary statistics or their equivalent.

3 credits; 1st semester (White)

212—THE EMOTIONS. A laboratory course. Four hours devoted to experiments and one hour discussion each week. Prerequisites, an advanced course in experimental psychology and elementary statistics or their equivalent.

3 credits; 1st semester (White)

[GIVEN 1935-36; NOT GIVEN 1936-37]

213—THE OBSERVATION PROCESSES. A laboratory course. Four hours devoted to experiments and one hour discussion each week. Prerequisites, an advanced course in experimental psychology and elementary statistics or their equivalent

3 credits; 2nd semester (White)

215—PSYCHOMETRICS. An advanced course which considers the treatment and interpretation of human measurements. The course deals with the computation and interpretation of simple, partial and multiple correlations, regressions, equations, and reliability of measures.

Prerequisites: Math. 24 3 credits; 1st semester (Asher)
or its equivalent.

217—PSYCHOLOGY OF LANGUAGE. An experimental course dealing with both written and spoken language. The development and physical basis of language, together with its function in thought processes. The main emphasis will be placed on the experimental phases of the subject. Two hours lecture and two hours laboratory each week.

3 credits; 2nd semester (White)

[GIVEN 1937-38; NOT OFFERED 1938-39]

218—SYSTEMATIC PSYCHOLOGY. An historical and critical study of fundamental concepts and current schools of psychology with a view to their evaluation.

3 credits; 2nd semester (Miner)

219—CLINICAL PSYCHOLOGY. Two hours clinic and two hours lecture. A survey of clinical work on the diagnosis and adjustment of problem children and adults. The course gives practical training and experience with representative cases.

3 credits; 2nd semester (Dimmick)

SOCIOLOGY

The courses in Sociology are designed primarily to give students an acquaintance with and fundamental conceptions of the larger social problems of the day. They are prepared with the purpose of making them an elemental part of one's general education.

101—SOCIAL DEPENDENCE. A study of poverty and social dependence, and of measures for its relief and reduction, with special attention to present private and public activities in this direction, including social insurance.

3 credits; 2nd semester (Best)

102—SOCIAL PATHOLOGY. A study of illness and accidents, mortality rates, mental and physical impairment or defectiveness, health insurance, and hospitals and similar institutions and agencies, all from a sociological point of view.

3 credits; 2nd semester (Caldwell)

103—CRIMINOLOGY. A study of general conditions as to crime and delinquency, of measures of punishment and reform of the offender, of criminal procedure and its possible reform, and of measures for the prevention of crime.

3 credits; 1st semester (Best)

107—COMMUNITY WELFARE WORK. A course involving an inspection of the several public welfare agencies and institutions of the community, and of certain ones of the State, after a preliminary theoretical consideration.

Prerequisite: Sociology 101, 102, 3 credits; 1st semester or 103.

109—THE FAMILY. A study of the family, both in its historical aspects and in connection with modern life.

2 credits; 2nd semester (Caldwell)

110—CHILD WELFARE. A study of present social attitudes toward the child, and of methods and agencies for its care and protection.

3 credits; 1st semester (Caldwell)

112—COMMUNITY ORGANIZATION. A study of the theory and practical results of organization among individuals and among different agencies in the community for the advancement of its life.

3 credits; 2nd semester

114a-d—INDEPENDENT WORK. Study of some special topic by duly authorized students.

1 credit; either semester (Staff)

118—URBAN SOCIAL ECONOMY. A study of the problems of the city.

2 credits; 2nd semester

121—POPULATION MOVEMENTS. A study of movements and trends in population, as with respect to race, age, birth-rates, etc.

3 credits; 2nd semester (Caldwell)

124—METHODS OF SOCIAL INVESTIGATION. A study of the several methods of investigation and research employed in the fields of sociology and social work. Two hours lecture; two hours laboratory. Open only to properly qualified students.

3 credits; 1st semester (Caldwell)

201a—SOCIOLOGY SEMINAR. Consideration mainly of methods of research and of current sociology literature.

2 credits; 1st semester (Staff)

201b—SOCIOLOGY SEMINAR. Continuation of 201a.

2 credits; 2nd semester (Staff)

205—SOCIAL SYSTEMS. A study of social systems propounded or attempted in human society from Plato's Republic down to the present.

2 credits; 1st semester (Caldwell)

223—SOCIAL TREATMENT OF DELINQUENCY. An examination of possible and actual methods of dealing with the delinquent, including institutional care, juvenile court, probation, parole, etc. Open only to properly qualified students.

3 credits; 2nd semester

226—SOCIAL LEGISLATION. A study of the essential content of the law dealing with social welfare matters, together with the general principles involved in its enactment. Open only to properly qualified students.

3 credits; 2nd semester

III. BIOLOGICAL SCIENCES

AGRONOMY (See Agriculture.)

ANATOMY AND PHYSIOLOGY

105—ARCHITECTURE OF THE HUMAN SKELETON. The course is designed for the student who wishes advanced study in Anatomy and Physiology, for students of Anthropology, for students in Art, and for those who are preparing for the study of medicine. The study begins with the development of the skeleton and joints. This is followed by the process of ossification and the histology of bones. Each bone of the body is studied in great detail, organized demonstrations are given with architecture and function being stressed. Variations in the skeleton are also considered and whenever possible, the bone is compared with that of the lower vertebrates. The physiology of the bone, joint and muscular relations are studied in detail. Lecture and recitation, one hour a week; laboratory, six hours a week.

4 credits; 1st semester (Sherwood and Assistant)

106—INTRODUCTION TO ENDOCRINOLOGY. This is an introductory study of the glands of internal secretion or the endocrine glands in which the general development, anatomical location and structure, and fundamental functions of the organs are presented. The purpose of the course is to give a general knowledge in this particular field rather than a technical and detailed knowledge. The course will be found to be of value not only to the student of Anatomy and Physiology and related subjects but also to those students of education and sociological interests. Lectures and discussions, three hours a week.

Prerequisites: A. & P. 1a and 1b 3 credits; 1st semester
or the equivalent; Zoology (Allen)
7b; Chemistry 1a and 1b;
and with the consent of
the instructor.

107—ADVANCED ANATOMY. An introduction to the anatomy and physiology of the nervous system. The aim of the course is to provide an introductory laboratory course on form, structure, and functional arrangements of the nervous system for students of biology, physiology, psychology and those preparing for the study of medicine or the medical sciences. The work of the course includes a careful study of the nervous systems of vertebrates. The simpler types of nervous systems are compared with that of man. The development of the various reflexes are considered. The relation of the structure of the nervous system to psychological reactions are studied. Lectures and recitations, two hours a week; laboratory, four hours a week.

Prerequisites: A. & P. 1a and 1b 4 credits; 2nd semester
or the equivalent. (Sherwood)

108a—ADVANCED PHYSIOLOGY. The course is designed for students who anticipate further advanced study in physiology or in the medical sciences. In the course, graphic records which show the character of contraction of muscle (skeletal and smooth) are made. This is followed by observing the different factors that vary the character of the contraction. Experiments are performed to show that muscle is thermogenic and an electrogenic organ. The nervous system which includes the structures and functions of the spinal cord, the medulla oblongata, the cerebellum, the cerebrum and the autonomic system are taken up in great detail. The course will close with an intensive study of the special sense-organs. Practically half of the semester will be devoted to the nervous system. Lectures, recitations, three hours a week; laboratory, four hours a week.

Prerequisite: A. & P. 1a and 1b 4 credits; 1st semester
or the equivalent; Chemistry (Allen, Sherwood and
1a and 1b; Physics 1a and Assistants)
1b; also, the consent of the
instructors.

108b—ADVANCED PHYSIOLOGY. This is a continuation of 108a. The course is opened with the study of the circulatory system. Much time is given to the consideration of the mechanics of the heart, its nervous regulation and the functional peculiarities of its tissues. The mechanics of the circulation (hemodynamics) which includes the nervous regulation of the blood vessels are also surveyed. Other subject material to be covered consists of the respiratory system; the gastrointestinal tract with its secretory organs; the process of digestion, absorption, excretion, heat production; voice and the production of speech. Lectures and recitation, three hours a week; laboratory, four hours a week.

Prerequisite: A. & P. 108. 4 credits; 2nd semester (Allen,
Sherwood and Assistants)

109—APPLICATION OF PHYSICAL PRINCIPLES TO THE HUMAN BODY. This course is especially designed for students interested in Anatomy and Physiology or the natural sciences. Students of the physical sciences as well as others will also find the course to be of practical and cultural value. The course is opened by thoroughly acquainting the student with the various physical phenomena that are to be considered. This will be followed by applying the same to the physiological processes of the body. Such will include stress and strain with respect to the bones of the skeleton, types of levers involved in joint action, permeability, calorimetry, mechanics of circulation and temperature regulation, mechanics of vision, mechanics of hearing,

mechanics of speech or voice. Lectures and recitations, two hours a week; laboratory, two hours a week

Prerequisites: A. & P. 1a and 1b 3 credits; 1st semester
or the equivalent; Physics 1a (Allen, Assistant and
and 1b; Chemistry 1a and 1b. members of the staff of
Department of Physics)

116c—SEMINAR IN ANATOMY AND PHYSIOLOGY. All students who are majoring in the Department are required to take this course. At each meeting of the Seminar, an assigned scientific article of physiological or anatomical subject matter will be reviewed thoroughly by a member of the seminar and then discussed in general. In addition to the foregoing, each member of the seminar will be required to follow closely the current publications bearing upon the subjects of the class and present brief reports of such articles which are of interest. One two-hour discussion period a week.

Prerequisites: A. & P. 1a and 1b 1 credit; 1st semester
or the equivalent. (Allen, Sherwood)

116d—SEMINAR IN ANATOMY AND PHYSIOLOGY. Continuation of 116c. One two-hour discussion period a week.

Prerequisites: A. & P. 1a and 1b 1 credit; 2nd semester
or the equivalent. (Allen, Sherwood)

201a—RESEARCH IN PHYSIOLOGY. The pursuit of an assigned problem in which the student will have the opportunity to demonstrate originality. Conference and laboratory, ten hours a week.

Prerequisites: A. & P. 1a and 1b 5 credits; 1st semester
or the equivalent; Chemistry (Allen, Sherwood)
127a and 127b (131a and
131b desirable); Physics, one
year.

201b—RESEARCH IN PHYSIOLOGY. Continuation of 201a. Conferences and laboratory, ten hours a week.

Prerequisites: A. & P. 1a and 1b 5 credits; 2nd semester
or the equivalent; Chemistry (Allen, Sherwood)
127a, and 127b (131a and
131b desirable); Physics, one
year.

ANIMAL INDUSTRY (See Agriculture.)

ANIMAL PATHOLOGY (See Agriculture.)

ANTHROPOLOGY AND ARCHÆOLOGY

101—PRINCIPLES OF ANTHROPOLOGY. Fundamental principles of anthropology; relationships of physical anthropology, anthropometry, ethnology, ethnography and archæology; anthropology of the New World; North American prehistory; ancient human occupation

in the Mississippi Valley; outline of man's prehistoric past in Kentucky; anthropological studies of Kentucky materials.

2 credits; 1st semester (Funkhouser)

102—KENTUCKY ARCHÆOLOGY. Review of archæological research in the United States; prehistoric cultures of the Mississippi Valley; development of ancient crafts; methods of classification of artifacts; significance of neolithic tools, weapons and problematical forms; a study of the artifacts and cultures represented in Kentucky. *Prerequisite: A. & A. 101.*

2 credits; 1st semester

(Webb or Haag)

105—ETHNOLOGY. A study of the present races of mankind. The origins, migrations and present distribution of these races and their subdivisions. Physical and mental characteristics of the proto-morphic, archimorphic and metamorphic groups with discussions of their cultures and religions.

2 credits; 2nd semester and summer session (Funkhouser)

106—ETHNOLOGY OF EUROPE. A study of the origins and migrations of the ethnological groups of Europe. The influence of Hamitic, Ligurian, Iberian and Pelasgian stocks on prehistoric civilizations; the effect of the migration of the Indo-Iranian Division; the contribution of the Semites to early European cultures; the contacts between the Aryans and Nordics in racial characters with particular attention given to the Q-Kelts, P-Kelts, Slavs and Anglo-Saxons. Three lectures per week.

Prerequisite: Ethnology 105.

2 credits (Funkhouser)

110a, b, c, d—FIELD ARCHÆOLOGY. Field work in archæology including the actual excavation of prehistoric sites, the surveying, photographing and measuring involved and the preparation of technical reports.

3 credits per course (Funkhouser, Webb and Haag)

115—NORTH AMERICAN ARCHÆOLOGY. A study of the origin and growth of prehistoric American Indian cultures north of Mexico as revealed by archæological data. Lectures and recitations three hours per week with selected readings for paper preparation.

3 credits; 1st semester (Haag)

BACTERIOLOGY

102—GENERAL BACTERIOLOGY. Observation and cultivation of bacteria and related microorganisms; study of their morphology, classification, physiology, relation to certain fermentations, to foods, to soil fertility, and to disease. Lectures and recitations, two hours a week; laboratory, four hours a week.

Prerequisite: Chemistry 1b. *4 credits (Scherago and Wright)*

103—PATHOGENIC BACTERIOLOGY. A study of human and animal pathogenic microorganisms, especially their morphological, cultural, biochemical and pathogenic properties. Lectures and recitations, two hours a week; laboratory, four hours a week.

Prerequisites: Bacteriology 52, 4 credits; 1st semester
102, or 2b and Chemistry 1b. (Scherago and Wright)

104—APPLIED BACTERIOLOGY. A course in bacteriological analysis to supplement Courses 52 or 102. Laboratory, four hours a week.

Prerequisites: Chemistry 1b preceded or accompanied by Bacteriology 52 or 102. (Weaver and Wright)

110a—LABORATORY DIAGNOSIS. Laboratory methods employed in diagnostic and public health laboratories. Designed primarily for students interested in Medical Technology. Examination of sputum, urine and blood. Laboratory, six hours a week.

Prerequisite: Must be preceded or accompanied by Bacteriology 103 3 credits; 2nd semester
(Scherago and Wright)

110b—LABORATORY DIAGNOSIS. A continuation of 110a. Laboratory diagnosis of intestinal parasitism; examination of stomach and intestinal contents; laboratory methods used in diagnosis of gonorrhea, typhoid fever, syphilis, etc. Laboratory, six hours a week.

Prerequisite: Bacteriology 103. 3 credits; 2nd semester
(Scherago and Wright)

111—GENERAL PATHOLOGY. The effect of disease on the organs and tissues of the human body. Fresh and museum specimens as well as histological sections will be examined. Degenerations, infiltrations, regenerations, inflammation, disturbances of the circulation, infectious granulomata, neoplasms, etc., will be studied. Lectures and recitations, two hours a week; laboratory, four hours a week.

Prerequisites: Physiology 1a and 1b; Zoology 7b and 101b; Bacteriology 103. 4 credits; 1st semester
(Maxwell and Scherago)

115—INDIVIDUAL WORK. Students will be assigned special problems in laboratory work and reference reading. Laboratory, six hours a week.

Prerequisite: Any advanced course in Bacteriology. 3 credits (Scheago, Weaver, Maxwell and Wright)

120a—HOSPITAL LABORATORY PRACTICE. Students will be required to carry out, under supervision, the laboratory work in one of the hospitals in Lexington. Laboratory, twelve hours a week.

Prerequisites: Bacteriology 110a, b; consent of Head of Department. 4 credits; 1st semester
(Maxwell, Provost and Brueck)

120b—HOSPITAL LABORATORY PRACTICE. Continuation of 120a. Laboratory, eighteen hours a week.

Prerequisites: Bacteriology 6 credits; 2nd semester
110a, b; consent of Head (Maxwell, Provost
of Department. and Brueck

125—IMMUNOLOGY AND SEROLOGY. The theories and mechanism of infection and immunity; the preparation, standardization and uses of vaccines, toxins, antibodies and other biological products related to the diagnosis, prevention and treatment of specific infectious diseases; agglutination, precipitation, complement fixation, etc.; receptor analysis; hypersensitiveness. Lectures and recitations, two hours a week; laboratory, six hours a week.

Prerequisite: Bacteriology 103. 5 credits; 2nd semester
(Scherago and Weaver)

150a-d—SEMINAR. Review of current literature in bacteriology; presentation of papers on work in progress in the department or on assigned topics; reports on meetings of national bacteriological societies.

1 credit; both semesters (Staff)

201a-d—RESEARCH IN BACTERIOLOGY. Laboratory, ten hours a week

5 credits; both semesters (Scherago, Weaver
and Maxwell)

203a—PUBLIC HEALTH BACTERIOLOGY. This course considers the public health aspects of bacteriology including the etiology, epidemiology; immunology, and laboratory diagnosis of infectious diseases; the bacteriology of air, water and sewage; food poisoning; the production, standardization and practical applications of biological products used in the diagnosis, treatment and prevention of infectious diseases; the standardization of disinfectants.

Prerequisites: Open only to physicians 3 credits (Scherago)
and health officers or those with
equivalent training.

203b—PUBLIC HEALTH BACTERIOLOGY. Continuation of Course 203a.

Prerequisite: Bacteriology 203a. 3 credits (Scherago)

NOTE.—This course is offered in the summer session only.

206—BACTERIOLOGY OF FOODS. Microbiology of milk and milk products, eggs, tomato products, meat and meat products; food preservation; bacterial food poisoning. Lectures and recitations, two hours a week; laboratory, four hours a week.

Prerequisites: Chemistry 1b and 4 credits; 1st semester
Bacteriology 52, 102 or 2b. (Weaver)

207—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. Lectures and recitations, two hours a week; laboratory, four hours a week.

Prerequisites: Chemistry 1b and Bacteriology 52, 102 or 2b. 4 credits; 2nd semester (Weaver)

BOTANY

106a—SPECIAL PROBLEM. The qualified student will be assigned some problems for solution.

3 credits (McFarland, McInteer)

106b—SPECIAL PROBLEM. A continuation of 106a.

3 credits (McFarland, 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.

Prerequisites: Botany 125a, b. 1 credit (McFarland)

103—PLANT PHYSIOLOGY. A course dealing with the fundamental functions of the plant cell life, nature of protoplasmic membranes, osmotic phenomena, metabolism, growth and responses of various kinds. Lecture one hour; recitation, one hour; laboratory four hours.

Prerequisites: Botany 1a, 1b. 4 credits (McInteer)

114—ECOLOGY. A course dealing with plants in relation to their habitats. Studies will be made along the lines of plant groups and quadrat formation. The influence of various soils and environment on plants and their growth. Lecture, two hours; laboratory, two hours.

Prerequisites: Botany 1a, 1b, 15. 3 credits (McInteer)

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

4 credits (McFarland)

125b—MORPHOLOGY OF FUNGI. A continuation of 125a.

4 credits (McFarland)

126a—MYCOLOGY. A course which employs the entire time of the student in identification of unknowns.

4 credits (McFarland)

126b—MYCOLOGY. A continuation of 126a.

4 credits (McFarland)

150a—ADVANCED SYSTEMATIC BOTANY. A continuation of Course 15, but more work and more difficult plants are studied.

3 credits (McFarland, McInteer)

150b—ADVANCED SYSTEMATIC BOTANY. A continuation of 150a.

3 credits (McFarland, McInteer)

206a—RESEARCH IN MORPHOLOGY.

5 credits (McFarland, McInteer)

206b—RESEARCH IN MORPHOLOGY. A continuation of 206a.

5 credits (McFarland, McInteer)

207a—RESEARCH IN MYCOLOGY.

5 credits (McFarland)

207b—RESEARCH IN MYCOLOGY. A continuation of 207a.

5 credits (McFarland)

210a—RESEARCH IN PLANT PHYSIOLOGY.

5 credits (McInteer)

210b—RESEARCH IN PLANT PHYSIOLOGY. A continuation of 210a.

5 credits (McInteer)

213a—RESEARCH IN SYSTEMATIC BOTANY.

5 credits (McFarland, McInteer)

213b—RESEARCH IN SYSTEMATIC BOTANY. A continuation of 213a.

5 credits (McFarland, McInteer)

ENTOMOLOGY (See Agriculture.)

HORTICULTURE (See Agriculture.)

HYGIENE AND PUBLIC HEALTH

The Department of Hygiene and Public Health offers graduate work leading to the degree of Master of Arts or Master of Science. The requirements for these degrees are the same as required in all other departments.

Most of the graduate work of this department, however, is offered in the Summer Session and is designed primarily for public health officers. This work leads to the professional degree of Master of Science in Public Health, the requirements for which are given in a preceding section of this bulletin.

The courses offered by the department which are accepted for graduate credit are as follows:

100a—PUBLIC HEALTH. A consideration of the cause, prevalence, transmission and control of preventable diseases.

3 credits; 1st semester, summer school

(Chambers and Heinz)

100b—PUBLIC HEALTH. A continuation of 100a. Environmental and organization approach to disease prevention.

3 credits; 2nd semester, summer school

(Chambers and Heinz)

104—MATERNAL AND CHILD HEALTH. Problems in maternal and child health from the standpoint of the public health nurse.

2 credits; 2nd semester, summer school (Griffin)

110—HEALTH EDUCATION AND HEALTH SUPERVISION OF SCHOOLS. A course dealing with principles of health education, and the cooperative nature of school health work through study of problems in the solution of which contributions are made by parents, school and community.

3 credits; 2nd semester, summer school (Heinz)

111a, b—INDEPENDENT WORK IN HYGIENE AND PUBLIC HEALTH.

3 credits; 1st and 2nd semesters (Staff)

115—COMMUNICABLE DISEASES. A study of communicable diseases with reference to causal agents, transmission, and their methods of prevention and control.

3 credits; summer school (Hamilton)

118—VITAL STATISTICS. Statistics of population, deaths, births and morbidity; the collection and analysis of vital statistics.

3 credits; 1st semester, summer school (Heinz)

120a—MENTAL HYGIENE. An introduction to mental hygiene, including a consideration of the cause, treatment and prevention of mental disorders.

3 credits; 1st semester, summer school (Ratliff)

120b—MENTAL HYGIENE. A continuation of Hygiene 120a. Students are given the opportunity to apply to concrete cases the principles and concepts developed in 120a.

3 credits; 2nd semester, summer school (Ratliff)

124a—PUBLIC HEALTH NURSING. The principles and practices of public health nursing.

3 credits; summer school

124b—PUBLIC HEALTH NURSING. Educational interpretations of public health services. A continuation of Hygiene 124a.

3 credits; summer school

125a—COUNTY HEALTH PRACTICE. Lectures and recitations on the purposes, development, practice and techniques of local health work.

2 credits; 2nd semester, summer school (Cawood)

125b-e—COUNTY HEALTH PRACTICE. Nursing practice in the training area under the supervision of trained personnel. Sixteen weeks taken either concurrently or following the formal courses of instruction.

*3 credits; both semesters, summer school by appointment
(Cawood, Rood)*

130—DEFICIENCY DISEASES AND NUTRITION. Lectures and recitations. A consideration of the physiological action of the more common vitamins and hormones and the clinical and subclinical manifestations of their excess or deficiency. The public health aspects of prevalence and control are emphasized.

2 credits; summer school (Gambill)

200—EPIDEMIOLOGY. The cause, transmission and control of communicable diseases.

3 credits; summer school (Chambers)

203—PUBLIC HEALTH RECORDS. General principles of recording, filing and use of public health data.

2 credits; summer school (Cawood)

204—MATERNAL AND CHILD HEALTH. Lectures and conferences. The principles of prenatal, infant and child care.

2 credits; summer school (Griffin)

212a—PUBLIC HEALTH ADMINISTRATION. The organization and administration of public health.

3 credits; summer school (Mustard)

218a—VITAL STATISTICS. Statistics of population, births, deaths, marriage and morbidity.

3 credits; summer school (Fertig)

218b—VITAL STATISTICS. A continuation of 218a.

2 credits; summer school (Fertig)

220—MENTAL HYGIENE. Lectures and clinics considering the cause, classification, course, treatment and prevention of mental disorders.

2 credits; summer school (Rogers)

225a—COUNTY HEALTH PRACTICE. An internship in actual county health practice.

3 credits; summer school (Cawood)

225b—COUNTY HEALTH PRACTICE. A critical analysis of one service of the Fayette County Health Department.

2 credits; summer school (Cawood)

290—SEMINAR.

1 credit; summer school (Staff)

PSYCHOLOGY (See Social Sciences.)

ZOOLOGY

101a—HISTOLOGY. Histology of the tissues. 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

Prerequisites: Zoology 1a, b. 3 credits; 1st semester (Brauer)

101b—HISTOLOGY. Histology of the organs. A continuation of Course 101a. Lectures and laboratory work on the microscopic anatomy of the animal body.

Prerequisite: Zoology 101a. 3 credits; 2nd semester (Brauer)

102—ORNITHOLOGY. A study of the life histories, anatomy and physiology and taxonomy of birds with particular reference to the habits, songs, eggs, nests, migration and economic importance of our native birds.

3 credits (Funkhouser, Allen)

105—PARASITOLOGY. A study of the more important parasites, particularly those affecting the health and comfort of man. Identification, life histories and etiology of important species. Methods of study and methods of control.

3 credits; 1st semester (Meyer)

106—EMBRYOLOGY. Vertebrate development. Lectures on maturation, fertilization, cleavage, axiation, organogenesis, 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.

4 credits; 2nd semester (Brauer)

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.

2 credits; 1st semester (Funkhouser)

108b—PRINCIPLES OF ZOOLOGY. A continuation of 108a. The second semester is devoted to the study of heredity, eugenics and animal instincts.

2 credits; 2nd semester (Funkhouser)

110a—INDIVIDUAL WORK. Special problems for individual students who are capable of pursuing independent investigations.

3 credits (Funkhouser, Allen, Brauer)

110b—INDIVIDUAL WORK. A continuation of 110a.

3 credits (Funkhouser, Allen, 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.

3 credits; 1st semester (Allen)

114a—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) Correlation of zoological fields.

1 credit (Staff)

114b—ZOOLOGICAL SEMINAR. A continuation of 114a.

1 credit (Staff)

157a—INVERTEBRATE 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.

4 credits; 1st semester (Allen and Meyer)

157b—VERTEBRATE 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) Complete demonstration of the Mammalian anatomy.

4 credits; 2nd semester (Allen)

160—ONTOGENY. Theories and philosophies of development with a consideration of experimental data bearing thereon. Lectures and literature reports.

2 credits; 1st semester (Brauer)

201a—HERPETOLOGY. Systematic and taxonomic studies of the Reptilia. For graduate students only.

3 credits; 1st semester (Funkhouser)

201b—HERPETOLOGY. A continuation of 201a.

3 credits; 2nd semester (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.

4 credits; 1st semester (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.

4 credits; 2nd semester (Funkhouser)

IV. PHYSICAL SCIENCES

CHEMISTRY

Requirements for the degree of Master of Science: Twenty-four credits in graduate courses exclusive of the thesis, one academic year (36 weeks) in residence, and an acceptable thesis.

The applicant must have a good reading knowledge of scientific German. Ability to read scientific French is often required of the candidate.

101—PHYSICAL CHEMISTRY. For students in Agriculture and the biological sciences.

*Prerequisites: Chemistry 7 and 8, 5 credits; either semester
Physics 1b, Mathematics 17. (Bedford)*

102—ELECTRO CHEMISTRY. Elementary, electro-analysis, electroplating and preparation of some inorganic and organic substances by electrolysis.

*Prerequisites: Chemistry 101 5 credits; either semester
or 131b, 109, 127b. (Bedford)*

103—QUALITATIVE ORGANIC ANALYSIS. A systematic study of the separation and identification of organic compounds. Laboratory, ten hours a week.

*Prerequisite: Chemistry 127b. 5 credits; either semester
(Barkenbus)*

104—SYNTHETIC INORGANIC CHEMISTRY. An intermediate course planned to aid the student in gaining a more adequate knowledge of practical inorganic chemistry.

Prerequisite: Chemistry 150. 5 credits; 2nd semester (Maxson)

106—ADVANCED ORGANIC CHEMISTRY. 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.

Prerequisite: Chemistry 127b. 5 credits (Barkenbus)

107—SELECTED PROBLEMS IN QUANTITATIVE ANALYSIS.
Prerequisite: Chemistry 109. 5 credits; 2nd semester (Stewart)

108—COLLOID CHEMISTRY. A course involving the preparation of colloids and study of the physical and chemical properties of matter in the colloidal state.

5 credits; 2nd semester (Maxson)

109—QUANTITATIVE ANALYSIS. A lecture and laboratory course devoted to the analysis of ores, alloys, etc.

*Prerequisite: Chemistry 8. 5 credits; either semester
(Stewart)*

110—PHYSICAL CHEMISTRY. Intermediate course.
Prerequisites: Chemistry 131b 3 credits; either semester
and Calculus. (Bedford)

111—PHYSICAL CHEMISTRY. Intermediate course.
Prerequisite or concurrent: Chemistry 110. 2 credits; either semester
(Bedford)

112—ADVANCED AGRICULTURAL ANALYSIS. A laboratory course having for its object the complete analysis of fertilizers, feeds, soils and agricultural products.
Prerequisite: Chemistry 8. 4 credits; 2nd semester (Stewart)

114—ADVANCED QUANTITATIVE ANALYSIS. The analysis of iron and steel, slags and rocks.
Prerequisite: Chemistry 109. 5 credits; either semester
(Stewart)

118—WATER ANALYSIS. In this course waters are examined to determine their fitness for domestic and other purposes.
2 credits; 1st semester (Stewart)

119a—INDUSTRIAL CHEMISTRY. A survey course on modern industrial chemistry using the chemical literature and a text as a basis for discussion.

2 credits; 1st semester (Maxson)

119b—INDUSTRIAL CHEMISTRY. A continuation of 119a.

2 credits; 2nd semester (Maxson)

122a—JOURNAL CLUB. Conferences and reports on chemical literature and training in the use of literature for research purposes.

1 credit; 1st semester (Maxson)

122b—JOURNAL CLUB. A continuation of 122a.

1 credit; 2nd semester (Maxson)

127a—ORGANIC CHEMISTRY. 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.

Prerequisite: Chemistry 1b. 5 credits; 1st semester
(Barkenbus)

127b—ORGANIC CHEMISTRY. A continuation of Chemistry 127a. Cyclic series.

Prerequisite: Chemistry 127a. 5 credits; 2nd semester
(Barkenbus)

129—FOOD CHEMISTRY AND ANALYSIS. The composition, adulteration and preservation of food. Laboratory practice on the analysis of milk, sugar, baking powder, vinegar, alcoholic beverages, fats, etc.

Prerequisites: Chemistry 7 5 credits; 1st semester (Stewart)
or 127a and 8.

130a—PHYSIOLOGICAL CHEMISTRY. The chemistry metabolism of carbohydrates, proteins, and fats. A study of the tissues, the secretions 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: Chemistry 5 credits; 1st semester
7 or 127a. (Barkenbus)

130b—PHYSIOLOGICAL CHEMISTRY. A continuation of 130a.
5 credits; 2nd semester (Barkenbus)

131a—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; Thermo-Chemistry.

4 credits; 1st semester (Bedford)

131b—INTRODUCTORY COURSE IN PHYSICAL CHEMISTRY. A continuation of 131a. Homogeneous and Heterogeneous Equilibria; Chemical Kinetics; Structure of Matter; Periodic Law; Radio-Chemistry; Colloids; Electro-Chemistry.

Prerequisite: Chemistry 131a. 4 credits; 2nd semester
(Bedford)

140—INDUSTRIAL STOICHIOMETRY. Chemical calculations of manufacturing processes, e. g., calculations related to the production of water and producer gas, lime, cement, nitric and sulphuric acids and other industrial products.

Prerequisite: Chemistry 119a. 3 credits; 2nd semester
(Bedford)

150—ADVANCED INORGANIC CHEMISTRY. A survey course covering the less common side of inorganic chemistry including laboratory work in synthesis.

Prerequisite: Chemistry 131b. 4 credits; 2nd semester
(Maxson)

201—SYNTHETIC INORGANIC CHEMISTRY. Practice and research in inorganic synthesis, with use of original literature.

5 credits; either semester (Maxson)

202—QUANTITATIVE ANALYSIS. A critical study of known procedures and research in analytical chemistry.

5 credits; either semester (Stewart)

204a—ORGANIC CHEMISTRY. A laboratory course with conferences on special problems in organic chemistry.

Prerequisite: Chemistry 106. 5 credits; either semester
(Barkenbus)

204b—ORGANIC CHEMISTRY

Prerequisite: Chemistry 204a. 5 credits; either semester
(Barkenbus)

205a—ADVANCED PHYSICAL CHEMISTRY. Lectures on selected topics.

Prerequisite: Chemistry 131b. 2 credits; either semester
(Bedford)

205b—ADVANCED PHYSICAL CHEMISTRY. (Continuation of 205a.) Lectures on selected topics.

2 credits; either semester (Bedford)

206a—ADVANCED PHYSICAL CHEMISTRY. Laboratory course on selected topics in Advanced Physical or Electro-Chemistry.

Prerequisite or concurrent: 3 or more credits; either
Chemistry 205a. semester (Bedford)

206b—ADVANCED PHYSICAL CHEMISTRY. Continuation of 206a.

Prerequisite or concurrent: 3 or more credits; either
Chemistry 205b. semester (Bedford)

207a—SYSTEMATIC INORGANIC CHEMISTRY. Lectures and conferences, two hours a week.

Prerequisite: Chemistry 131b or 2 credits; either semester
its equivalent and Chemistry 150. (Maxson)

207b—SYSTEMATIC INORGANIC CHEMISTRY. Continuation of Chemistry 207a. Lectures and conferences, two hours a week.

2 credits; either semester (Maxson)

208—THEORETICAL CHEMISTRY. A historical survey of atomic theories and their influence upon the development of chemistry. Two lectures and assigned reading a week.

2 credits; either semester (Stewart)

210a, b, c, d—SEMINAR. Reports and discussions of recent research and current literature. 2 hours.

1 credit; either semester (Staff)

ENGINEERING (See Engineering.)

GEOLOGY

101a—PALEONTOLOGY. A systematic study of the important phyla of fossil invertebrates, their classification, identification, and geological distribution.

Prerequisites: Geology 15a-b; 3 credits; 1st semester
Zoology 1a-b. (McFarlan)

101b—PALEONTOLOGY. The stratigraphic use of fossils in the determination of the geologic age of strata. Collections are assigned, the fossils identified, and the age of the fauna determined.

Prerequisite: Geology 101a. 3 credits; 2nd semester
(McFarlan)

104a, b, c, etc.—ADVANCED FIELD GEOLOGY. The preparation of a geologic map, structure, and stratigraphic sections of assigned areas.

Prerequisites: Geology 9b, 15a-b.

2 credits (McFarlan)

105a, b, c, etc.—INDEPENDENT WORK IN GEOLOGY. May be elected in any field. Registration only after consultation with instructor in charge.

3 credits

106a—ECONOMIC GEOLOGY. Non-metallic mineral deposits (excepting petroleum, natural gas and asphalt). A study of origin, mode of occurrence, distribution and uses.

Prerequisite: Geology 15a-b.

3 credits (Nelson)

106b—ECONOMIC GEOLOGY. Metallic mineral deposits.

3 credits (Nelson)

118a, b, c—FIELD WORK IN REGIONAL GEOLOGY. Three weeks in the field in selected areas. These are varied from year to year to permit extended work of this type. They have included the Southern Appalachians (1935), Niagara Falls and Sudbury, Ontario (1936), the Arbuckle and Ouachita Mountains, and eastern Oklahoma and Texas (1937), the Black Hills, South Dakota (1938), and New York, New England and Quebec (1939). The course is offered as a part of the first summer session, coming early in June before the opening of the term. Required of major students at the end of their junior year.

Prerequisite: Geology 15a-b. 2 credits (McFarlan and Young)

120a—GEOLOGY OF KENTUCKY. A study of the geological features of the state other than mineral resources. This includes the major events in its geological history, the development of regional characters, and an explanation of its scenic and natural wonders.

3 credits (McFarlan)

120b—GEOLOGY OF KENTUCKY. The mineral resources of the state, their recognition, distribution, origin and uses. The fossil record of ancient life.

3 credits (McFarlan)

121—ECONOMIC GEOLOGY OF KENTUCKY. A technical study of the mineral resources of the state, their distribution and availability, geological occurrence, origin, and geological factors determining probable extension of known deposits and the finding of others.

Prerequisites: Geology 101a, b;

3 credits

106a, b; 104a, b; 109a, b; 122.

(McFarlan and others)

122—PETROLEUM GEOLOGY. A study of the origin and accumulation of petroleum. The course includes a consideration of the stratigraphy and structure of producing regions of the United States and a study of geologic methods used in exploratory work and in the exten-

sion and development of known fields. An introduction to geophysical methods is given by Dr. Koppius.

Prerequisites: Geology 9a, b; 15a, b; 19a, b; Physics 1a, b. 3 credits; 2nd semester (Robinson)

123a—MINERALOGY. Crystallography and physical mineralogy with emphasis on their use in mineral identification.

Prerequisite: Chemistry 1a-b. 3 credits; 1st semester (Robinson)

123b—MINERALOGY. Chemical, descriptive and determinative mineralogy. The origin, occurrence, associations and alteration products of minerals.

3 credits; 2nd semester (Robinson)

124a-b—REGIONAL GEOLOGY. A study of the geologic regions of the United States. The course will serve as tutorial work in preparation for the comprehensive examination.

3 credits per semester (All members of staff)

202a-b—RESEARCH IN GEOLOGY. Consult instructor before registering.

5 credits

207a—PETROLOGY. Optical mineralogy. The use of optical properties in the determination of minerals in thin sections. A study of the minerals, their associations, and alteration products.

Prerequisites: Geology 109a-b; Physics 1a-b. 3 credits (Robinson)

207b—PETROLOGY. A study of igneous rocks, their classification, origin, metamorphism and decay.

Prerequisite: Geology 107a. 3 credits (Robinson)

210a—STRATIGRAPHIC PALEONTOLOGY. A study of the more important index fossils and fossil associations used in stratigraphic work. Paleozoic.

Prerequisites: Geology 101a-b. 3 credits (McFarlan)

210b—STRATIGRAPHIC PALEONTOLOGY. Mesozoic and Cenozoic.

3 credits (Young)

MATHEMATICS AND ASTRONOMY

Graduate students will be able to obtain sufficient work to qualify for the doctor's degree. Twelve credits beyond calculus are required before counting work toward an advanced degree.

102—VECTOR ANALYSIS. An elementary course in the algebra and calculus of vectors with numerous applications in geometry and physics.

Prerequisite: Course 20b. 3 credits; 1st semester (John)
[OFFERED 1939-40]

103—THEORY OF EQUATIONS. This course is based on Dickson's First Course in the Theory of Equations, which is used as a text.

Prerequisite: Course 20a. 3 credits; 2nd semester
(Brown)

[OFFERED 1939-40]

105a—DIFFERENTIAL EQUATIONS. A first course in differential equations based on A. Cohen's text.

Prerequisite: Course 20b. 3 credits; 1st semester
(Downing)

[GIVEN 1938-39; OFFERED 1939-40]

105b—DIFFERENTIAL EQUATIONS. Continuation of 105a. Partial differential equations. Applications.

3 credits; 2nd semester (John)

[GIVEN 1938-39]

106a—ADVANCED CALCULUS. Topics included: Continuity of functions; derivatives and differentials; Taylor's series; power series; partial differentiation; total derivatives; implicit functions; Jacobians; applications to geometry—elements of arc, area, and surface; maxima and minima; curvature and torsion.

Prerequisite: Course 20b. 3 credits; 1st semester
(Cohen, LeSturgeon)

[OFFERED 1939-40]

106b—ADVANCED CALCULUS. Continuation of Mathematics 106a. Topics included: Definite integrals—existence, properties, differentiation of a definite integral, integration under the integral sign, improper integrals; Gamma and Beta functions; Dirichlet integrals; line, surface, and space integrals; elliptic integrals.

Prerequisite: Course 106a or consent of instructor. 3 credits; 2nd semester
(Cohen)

[OFFERED 1939-40]

107—PROJECTIVE GEOMETRY. A brief course based on a text like Downing's.

Prerequisite: Course 20a. 3 credits; 1st semester (Pence)

[GIVEN 1938-39]

110a-f—INDEPENDENT WORK IN MATHEMATICS. Limited to upper division and graduate students of high standing.

Prerequisite: Course 20b. 3 credits; both semesters
(Senior Staff)

[GIVEN 1938-39; OFFERED 1939-40]

112—SERIES. Important theorems on limits, properties of infinite series, uniform convergence, multiplication of series.

Prerequisite: Course 20b. 3 credits; 1st semester (South)

[GIVEN 1938-39]

116—ANALYTIC MECHANICS. Topics included: Composition and resolution of forces; statics of a particle; moments; couples; center of gravity; friction; simple harmonic motion; constrained motion; work and energy; inertia; impulse.

Prerequisite: Course 20b.

3 credits; 2nd semester

(Downing)

[GIVEN 1938-39]

118—SOLID ANALYTIC GEOMETRY. Loci of equations of first and second degrees in three variables. Determinants and Matrices. Methods and principles of use in various fields of higher mathematics.

Prerequisite: Course 20b.

3 credits; 1st semester

(LeStourgeon)

[GIVEN 1938-39]

120—MATHEMATICAL STATISTICS. Topics considered: Averages, coefficient of dispersion and skewness, graphical representation, Bernoulli's theorem, curve fitting, theory of sampling, correlation, and regression lines.

Prerequisite: Course 20a.

3 credits; 2nd semester (South)

[GIVEN 1938-39]

122—ACTUARIAL MATHEMATICS. Theory and construction of mortality tables, life annuities, premiums, terminal reserves, etc.

Prerequisites: Mathematics 14, 20a.

3 credits; 2nd semester

(South)

[OFFERED 1939-40]

201a—GEOMETRIC TRANSFORMATIONS. A course based largely on Doehlemaann's G. T.

3 credits; 1st semester (Boyd)

[OFFERED 1939-40]

202a—ALGEBRAIC CURVES. The classical theory as presented by Salmon, Wieleitner or Ganguli.

3 credits; 2nd semester (Boyd)

[GIVEN 1938-39]

203—THESIS. Required in addition to twenty-four credits for the Master's degree.

3 credits; both semesters (Senior Staff)

[GIVEN 1938-39; OFFERED 1939-40]

204—CALCULUS OF VARIATIONS. Examples illustrating the various types of problems. The differential equation of a curve which minimizes a definite integral. Other properties of a minimizing arc as deduced by Legendre, Weierstrass and Jacobi. Isoperimetric problems.

Prerequisites: Courses 105a, 106a.

3 credits; 1st semester

(Downing)

[OFFERED 1939-40]

205—DIFFERENTIAL GEOMETRY. Introductory study of metric properties of surfaces and twisted curves. Although vector analysis is not required, vector methods will be found of great assistance in the study.

3 credits; 2nd semester (John)

[OFFERED 1939-40]

206—THEORY OF GROUPS. An introductory course.

3 credits; 2nd semester (Latimer)

[GIVEN 1938-39]

207a—THEORY OF NUMBERS. This course covers the material in Chapters 1-5, inclusive, of Dickson's "Introduction to the Theory of Numbers".

3 credits; 1st semester (Latimer)

[OFFERED 1939-40]

207b—THEORY OF NUMBERS. Material of Chapters 6-10, inclusive, of Dickson's Introduction to the Theory of Numbers.

3 credits; 2nd semester (Latimer)

[OFFERED 1939-40]

209—THEORY OF FUNCTIONS OF THE COMPLEX VARIABLE. Introduction to algebra and calculus of complex numbers and their geometric representation. Conformal transformation. Cauchy-Riemann viewpoint, Weierstrass development. Riemann surfaces.

Prerequisites: Courses 105a, 106a. 3 credits; 2nd semester

(LeSturgeon)

[OFFERED 1939-40]

211—HIGHER ALGEBRA. This course covers the material in Chapters 2-11 inclusive and Chapter XX in Bocher's "Introduction to Higher Algebra".

Prerequisite: Course 20a. 3 credits; 1st semester (Latimer)

[GIVEN 1938-39]

220a-d—MATHEMATICS SEMINAR.

2 credits; 2nd semester (Latimer, John)

[OFFERED 1939-40]

221—TENSOR ANALYSIS. A course on the modern extension of vector analysis with special emphasis on applications to differential geometry. Algebraic part of theory of tensors. Quadratic differential forms. Riemannian geometry. Pseudo-Euclidian geometry.

3 credits; 1st semester (John)

[GIVEN 1938-39]

251a—CELESTIAL MECHANICS. Linear motions; central forces, potential and attraction of bodies; problem of two bodies; Ivory's; Kepler's Equation.

3 credits; 2nd semester (Downing)

[OFFERED 1939-40]

NOTE.—Other courses such as Advanced Analytics, Modern Geometry, Fourier's Series, Potential Function, Algebraic Invariants, Real Variable, Algebraic Numbers, Practical Astronomy, second courses in various subjects, will be given from time to time.

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:

104—THEORETICAL MECHANICS. This course begins with a careful statement of the fundamental laws of mechanics and the conditions under which they hold. Defined quantities are introduced logically. The work is usually based on some standard text but will be supplemented by lectures. The student is expected to solve a representative list of problems.

*Prerequisites: Physics 2b and
Mathematics 20b.*

5 credits (Pardue)

108—THEORY OF LIGHT. This course is designed to provide a foundation for the study of the nature of light and optical phenomena. Six topics are treated; wave motion, Maxwell's definition of physical optics, geometrical optics, interference, diffraction, and optical instruments.

Prerequisites: Physics 2b, Mathematics 20b.

3 credits (Ramsay)

111—ELECTRICITY AND MAGNETISM. A study of the fundamental theory of electricity and magnetism, dealing with electrons. The physical concepts of electrical quantities are emphasized and systems of units defined. The course covers electrostatic forces and energy, conductors and dielectrics, electrolysis, thermoelectricity, magnetic forces and energy of currents, magnetization of iron, transient and alternating currents, and Maxwell's waves.

Prerequisites: Physics 2b, Mathematics 20b.

3 credits

(Warburton)

113—FUNDAMENTALS OF RADIO. A course in radio primarily for high school teachers. The fundamental principles of vacuum tube characteristics, amplifiers, oscillators, transmitters and receivers; laboratory work in constructing and operating simple radio equipment of a type suitable for radio club projects.

*Prerequisite: Physics 1b or
equivalent.*

3 credits (Hahn)

114—VACUUM TUBES AND CIRCUIT THEORY. The theory of vacuum tubes and the measurement of their characteristics; amplifiers and oscillators; piezoelectric phenomena; radiation and propagation of high frequency electric waves; measurement of circuit constants, etc.

Prerequisites: Physics 2b, Mathematics 20b.

3 credits (Hahn)

116a—PHYSICAL MANIPULATIONS. A course for those who wish to acquire a technique in various physical manipulations, as for example, glass blowing, and the preparation and use of materials used in physical experiments.

*Prerequisites: College Physics or
College Chemistry.*

1 credit (Webb,
Koppius, Schneider)

116b—PHYSICAL MANIPULATIONS. A continuation of 116a.
1 credit (Webb, Koppius, Schneider)

117—THEORY OF HEAT. A lecture and problem course dealing with the fundamental principles of heat phenomena. Topics considered are: Production and measurement of high and low temperatures, specific heat relations both classical and modern, molecular spectra and specific heat, expansion, conduction, radiation, equations of state and change of state, temperature dependence of physical quantities such as viscosity, surface tension, elasticity, etc., elementary thermodynamics.

*Prerequisites: Physics 2b,
Mathematics 20b.*

3 credits (Koppius)

119—PRINCIPLES OF X-RAYS. A basic course in x-rays for the advanced undergraduate and graduate, dealing with the production and properties of x-rays, the mathematical development of the formulæ of absorption, scattering, polarization, etc.; methods of wave length measurement; the Compton effect and related quantum phenomena; a review of articles in the various scientific periodicals.

*Prerequisites: Physics 2b and
Mathematics 20b.*

3 credits (Hahn)

120—X-RAY TECHNIQUE. An introductory course in x-ray technology dealing with the design and operation of x-ray equipment, the use of intensifying screens, dark-room procedure, etc. Some practice will be given in the radiography of the extremities and teeth with special attention to voltage, current, time and distance factors. Lectures and recitations two hours a week.

Prerequisite: Physics 1a-b.

2 credits (Hahn)

122—X-RAY ANALYSIS OF CRYSTALS. Elementary theory of x-ray diffraction and its application to the study of the structure of matter; the methods of Laue, Bragg, crystal rotation and powder spectroscopy, as used in the determination of symmetry, cell size and atomic arrangement.

Prerequisite: Physics 119.

3 credits (Hahn)

123—PRINCIPLES OF THERMODYNAMICS. A lecture and problem course covering the first and second laws of thermodynamics, derivation of thermodynamic relations and their application to processes in physics and allied sciences. Topics considered: The gas laws

for both ideal and real gases, specific heat relations, continuity and change of state, vapor and osmotic pressures, equilibrium, solutions, electrical phenomena and radiation, etc.

*Prerequisites: Physics 2b and
Mathematics 20b.*

3 credits
(Koppius)

125a, b, c, d—INDIVIDUAL WORK IN PHYSICS.

3 credits (Staff)

131—EXPERIMENTAL PHYSICS: ELECTRICITY. This course provides advanced laboratory practice in electrical measurements. It includes calibration and use of the quadrant electro-meter, the d'Arsonval galvanometer and the Type K potentiometer; studies of dielectrics and the magnetization of iron; measurements of capacitance, resistance and inductance; charge and mass of electron; and absolute determinations of electrical quantities.

*Prerequisites: Physics 111,
or equivalent.*

2 credits (Warburton)

137—EXPERIMENTAL PHYSICS: HEAT. An advanced laboratory course in modern methods of measuring thermal quantities. Opportunity is provided for using the gas thermometer, resistance thermometer, thermopiles, and various types of radiation pyrometers. Construction and calibration of thermocouples. Determination of coefficients of expansion, vapor pressure and densities, viscosity, surface tension, freezing and boiling points, specific and latent heats, ratio of specific heats, heats of combustion, thermal conductivities radiation constants, etc.

*Prerequisites: Physics 117,
or equivalent.*

2 credits (Koppius)

138—EXPERIMENTAL PHYSICS: LIGHT. This course is an advanced laboratory study of lenses, mirrors, prisms, gratings, light sources, filters, apertures, and combinations of these elements in optical systems. The experiments include measurements, with such instruments as the photometer, the spectrometer, the interferometer, and the polarimeter, etc.

*Prerequisites: Physics 108,
or equivalent.*

2 credits (Ramsay)

151—INTRODUCTION TO ATOMIC PHYSICS. A survey of recent physics for those interested in professions other than advanced physics and a useful introduction for those planning to pursue physics intensively. Contents: corpuscular nature of matter, electricity and radiant energy; molecular, atomic and nuclear structure; theoretical viewpoints upon above problems with special emphasis in their compatibility; relativity, astrophysics.

*Prerequisites: Physics 2b and
Mathematics 20b.*

3 credits (Pardue)

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.

Prerequisites: Physics 103, one additional "100" course in Physics, and Mathematics 105a.

3 credits
(Ramsay)

202—MEASUREMENTS IN OPTICS. A course in the measurements of wave lengths; Fresnell mirrors and biprisms; determination of optical constants by Michelson's interferometer; reflection and transmission grating; spectroscopes and concave grating spectograph. This course is designed to supplement 201.

Prerequisite: Physics 103.

2 credits (Ramsay)

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.

Prerequisites: Two "100" courses in Physics, and Mathematics 105a.

3 credits (Webb)

205—KINETIC THEORY OF MATTER. 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. Brownian movements and specific heat relations are treated from the kinetic theory standpoint and equations of change of state are developed

Prerequisites: Two "100" courses in Physics, and Mathematics 105a.

3 credits (Koppius)

210a—ELECTRODYNAMICS. The mathematical theory of electricity and magnetism, including an analysis of the energy relations between charges and between currents. Numerous problems are solved by introducing boundary conditions in the general solutions of the differential equations. The expressions for retarded potentials and the Maxwell field equations are developed. Vector notation is used throughout.

Prerequisites: Physics 102a and Mathematics 105a.

3 credits (Warburton)

210b—ELECTRODYNAMICS. A treatment of the subject from the relativity point of view and on the electron theory. The topics treated will be the simultaneous and retarded fields of a point charge, the derivation and solution of the field equations, the dynamical equation

of the electron, radiation from an electron and groups of electrons.
Prerequisites: Physics 102a and Mathematics 105a. 3 credits (Pardue)

NOTE.—210a and 210b are independent of each other.

212—CONDUCTION OF ELECTRICITY THROUGH GASES. A course of lectures covering 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, photo-electricity, etc., are treated.
Prerequisites: Physics 102a and 104, and Mathematics 105a. 3 credits (Koppius)

213—ELECTRO-MAGNETIC THEORY OF LIGHT. A course of lectures covering the classical electro-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.
Prerequisites: Physics 103, one additional "100" course in Physics, and Mathematics 105a. 3 credits (Ramsay)

215—QUANTUM THEORY. A brief review of the Bohr and Bohr-Sommerfeld theories. The general aspects of wave mechanics, matrix mechanics, uncertainty principle. Application of the above theories to numerous and important problems.
Prerequisites: Physics 217a and Mathematics 105a. 3 credits (Pardue)

216a—RECENT ADVANCES IN PHYSICS. Current developments in physics are carefully studied with special interest placed upon their background and their trend. Useful training is afforded in the organization of the literature upon special topics.
Prerequisite: One specialized "200" course in Physics. 1 credit (Staff)

216b—RECENT ADVANCES IN PHYSICS. A continuation of 216a. 1 credit (Staff)

217a—THEORETICAL PHYSICS. Lectures upon advanced classical and relativity dynamics, hydrodynamics of perfect fluids and of viscous fluids, properties of elastic media. A substantial portion of the treatment of many of the topics will be taken from Page's "Introduction to Theoretical Physics".
Prerequisites: Two "100" courses in Physics and Mathematics 105a. 3 credits (Pardue)

217b—THEORETICAL PHYSICS. A continuation of 217a. Statistical mechanics, classical and modern. Origin of spectra including the classical theory of molecular spectra. Transformation of the ele-

ments. There is a slight flexibility which may be used to fit the needs of the students.

3 credits (Pardue)

218—THERMODYNAMICS. A review of the two classical laws of thermodynamics and their dynamical and statistical mechanical support; Nernst's heat theorem; applications of classical thermodynamics to important problems; relativity thermodynamics.

Prerequisites: Physics 101

3 credits

and Mathematics 105a.

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.

1 credit (Staff)

220b-d—SEMINAR. A continuation of 220a.

1 credit (Staff)

224—X-RAYS AND THEIR APPLICATIONS TO PHYSICAL PROBLEMS. An advanced study of the theories of production, scattering and absorption of x-rays, the interpretation of x-ray spectra, and advanced experimental technique in x-ray measurements. Much of the material will be taken from "X-Rays in Theory and Experiment" by Compton and Allison.

Prerequisite: Physics 119.

3 credits (Hahn)

225—THESIS. This course is intended for graduate students who are prepared to undertake special problems. Except in the case of a purely mathematical problem the entire time is to be devoted to work in the laboratory.

(Staff)

226a—RESEARCH IN PHYSICS.

3 credits (Staff)

226b—RESEARCH IN PHYSICS.

3 credits (Staff)

227a—RESEARCH IN PHYSICS.

5 credits (Staff)

227b—RESEARCH IN PHYSICS.

5 credits (Staff)

250a—RELATIVITY. A theory of space and time measurements as applied to physical phenomena.

Prerequisites: Physics 103 and either

3 credits

Physics 102a or 104.

(Webb)

250b—RELATIVITY. A continuation of Physics 250a.

3 credits (Webb)

V. AGRICULTURE

AGRICULTURAL EDUCATION (See Education.)

AGRICULTURAL ENTOMOLOGY

102—ADVANCED AGRICULTURAL ENTOMOLOGY. Life history, control and means of identification of the common and important insects of Kentucky; the making and care of school collections, cages and aquariums. Field trips and practical demonstrations of insect control. Especially planned for those intending to take up vocational agricultural teaching and county agent work.

Prerequisite: Entomology 10. 3 credits; 2nd semester
(Price or Townsend)

103—ECONOMIC ENTOMOLOGY—FRUIT AND GARDEN INSECTS. Beneficial and injurious insects of fruit and garden crops with special attention to the life histories, habits and control of injurious species found in Kentucky. A discussion of practical and specific control measures for each insect considered as garden and fruit pests.

Prerequisite: Entomology 10. 3 credits; 1st semester
(Price or Townsend)

104—ECONOMIC ENTOMOLOGY—FARM CROP INSECTS AND ANIMAL PARASITES. Beneficial and injurious insects of common farm crops including those of stored grains and forage. Detailed discussions of the more important Kentucky species with special reference to life histories and control measures. General theories of agronomic practice in the control of insects; fumigation methods and treatment for animal parasites.

Prerequisite: Entomology 10. 3 credits; 2nd semester
(Price or Townsend)

106a—SYSTEMATIC AND TECHNICAL AGRICULTURAL ENTOMOLOGY. Insect physiology, anatomy, ecology and taxonomy; entomological literature and technique; studies of special groups of insects.

Prerequisites: Entomology 10 3 credits; 1st semester
and any one of the following: 102, 103, 104. (Price or Townsend)

106b—SYSTEMATIC AND TECHNICAL AGRICULTURAL ENTOMOLOGY. A continuation of 106a.

3 credits; 2nd semester (Price or Townsend)

201a—ENTOMOLOGICAL PROBLEMS. Discussions and assignment of current insect subjects. Investigations of chosen insect problems including original research work.

Prerequisites: Entomology 10, 3 credits; 1st semester (Price)
103, 104, 106a and 106b.

201b—ENTOMOLOGICAL PROBLEMS. A continuation of 201a.
3 credits; 2nd semester (Price)

AGRONOMY

105a—ADVANCED CROPS: FORAGE CROPS. A comprehensive study of forage crops with special emphasis upon their production in Kentucky. Recitations, 3 hours.

Prerequisites: Agronomy 11; 3 credits; 1st semester
Botany 1b. (Fergus)

105b—ADVANCED CROPS: TOBACCO AND CEREALS. Tobacco and the important cereal crops are studied in considerable detail as regards distribution, soil and climatic adaptation, and technique of production. Recitations and lectures, 3 hours.

Prerequisite: Agronomy 11, 3 credits; 2nd semester
or equivalent; Botany 1b. (Kinney)

106—FIELD CROP IMPROVEMENT. A study of the principles involved and the technique used in breeding field crop plants. Lectures, 2 hours.

Prerequisites: Agronomy 11, 2 credits; 2nd semester
or equivalent; A. I. 19. (Kinney)

110—SOIL BIOLOGY. A study of the soil organisms and biological soil processes in relation to soil productivity. Lectures, 1 hour; laboratory, 4 hours.

Prerequisites: Agronomy 4; 3 credits; 1st semester
Bact. 52 desirable. (Karraker)

112a-b—SPECIAL PROBLEMS IN SOILS. Study of some special phase of the soil field, not covered in other courses, in which the student is interested.

Prerequisites: Agronomy 4 3 credits; both semesters
and permission of instructors. (Roberts, Karraker)

113—AGRONOMY EXPERIMENTATION. A study of the essentials of reliable field experimentation, including sources of error; a study of field results with emphasis on interpretation. Lectures and discussions, 3 hours.

Prerequisite: Agronomy 4. 3 credits; 1st semester
(Roberts)

115—SOIL MANAGEMENT. Deals with erosion, soil moisture, tillage operations, soil organic matter and nitrogen, including animal and green manures, lime and fertilizers. Lectures, 3 hours.

Prerequisite: Agronomy 4. 3 credits; 1st semester
(Roberts)

116—TOBACCO. A course designed for students particularly interested in the more practical phases of tobacco production and grading. Laboratory periods are devoted entirely to practice in grad-

ing various types of tobacco leaf. Offered in alternate years. Lectures, 1 hour per week; laboratory, 2 hours. Open to juniors and seniors.
2 credits; 2nd semester (Kinney)

[NOT GIVEN 1939-40; GIVEN 1940-41]

118—KENTUCKY SOILS. The kinds, use, and management of Kentucky soils, with particular reference to soil conservation. Lectures and recitations, 3 hours.

Prerequisite: Agronomy 4. 3 credits; summer
(Karraker)

119—THE ORIGIN, NATURE, AND CLASSIFICATION OF SOILS. The origin and nature of soils are considered with particular reference to soil classification. Lectures and recitations, 3 hours.

Prerequisite: Agronomy 4, and 3 credits; 2nd semester
permission of instructor. (Karraker)

202a-b—SPECIAL PROBLEMS IN CROP PRODUCTION. This course is for graduate students wishing to study form and growth of a crop plant in relation to production practices and problems.

2 credits; both semesters (Kinney, Ferguson)

203a-b—LITERATURE OF PLANT PATHOLOGY. A survey of the literature of plant pathology.

Prerequisite: Agronomy 23. 3 credits; both semesters
(Valleau)

204a-b—RESEARCH IN SOILS.

Prerequisite: Permission of 3 credits; both semesters
the instructors. (Roberts, Karraker)

207a-b—SEMINAR.

1 credit; both semesters (Agronomy Staff)

ANIMAL INDUSTRY

102—FARM BUTCHERING AND CURING MEATS. Slaughtering and blocking out of beeves, veals, hogs and lambs; judging on foot and on the hook; wholesale and retail cuts, meat curing and cures with special emphasis on pork. Lectures, 2 hours; laboratory, 4 hours.

Prerequisite: A. I. 31. 4 credits; each semester (Wilford)

104—ANIMAL BREEDING. Breeding plans, inbreeding, linebreeding, outcrossing; disease resistance; inheritance of lethal characters; genetics of sex; heredity in cattle, sheep, swine and laboratory animals. To be given alternate years. Lectures, 3 hours.

Prerequisite: A. I. 19. 3 credits; 1st semester

105—BEEF PRODUCTION. Development of the beef cattle industry in this and other countries; feeding, breeding and management of beef cattle. Laboratory work consists of judging beef cattle and practical problems relating to the industry. Lectures, 2 hours; laboratory, 2 hours.

Prerequisite: A. I. 20. 3 credits; 2nd semester (Good)

106—PORK PRODUCTION. A study of breeds and types; general management and feeding of all classes of swine supplemented with laboratory in judging and management. Lectures, 2 hours; laboratory, 2 hours.

Prerequisite: A. I. 20.

3 credits; 1st semester

(Wilford)

107—SHEEP PRODUCTION. Breeds and market classes; judging, breeding, feeding, management and marketing of sheep; production and marketing of wool. Lectures, 3 hours.

Prerequisite: A. I. 31.

3 credits; 2nd semester (Horlacher)

110—ADVANCED LIVESTOCK JUDGING. Primarily for judging team candidates. Open only to those who have made good standings in the prerequisite course. Lectures and laboratory.

Prerequisites: A. I. 13 and A. I. 31.

3 credits; 1st semester

(Garrigus)

111a-b—SPECIAL PROBLEMS IN ANIMAL HUSBANDRY.

3 credits; each semester (Animal Husbandry Staff)

125—DAIRY CATTLE FEEDING AND MANAGEMENT. The application of the principles of nutrition to dairy cattle feeding problems; up-to-date methods contributing to maximum efficiency in the production of quality dairy products on the farm. Lectures, 3 hours.

Prerequisite: A. I. 20.

3 credits; 2nd semester (Ely)

127—POULTRY BREEDING. Fundamental genetic principles involved in poultry breeding; disease resistance; inheritance of egg production and related characters; development of breeding programs. To be given alternate years. Lectures, 3 hours.

Prerequisite: A. I. 19.

3 credits; 1st semester

[OFFERED 1939-40]

129—DAIRY BACTERIOLOGY. The application of bacteriological principles to the production and processing of milk and other dairy products involving methods of entrance of microorganisms into dairy products, effects of their growth and methods for their control. Lectures, 2 hours; laboratory, 4 hours.

Prerequisite: Bacteriology 52,
or 102.

4 credits; 1st semester

(Morrison)

130—BUTTER AND ICE CREAM. A study of the various processes and problems involved in the manufacture and storage of butter and ice cream. Lecture, 1 hour; laboratory, 6 hours.

Prerequisite: A. I. 33.

3 credits; 1st semester (Barkman)

131—MARKET MILK AND CHEESE. A study of the problems connected with the production and handling of milk and manufacture of certain types of cheese. Lecture, 1 hour; laboratory, 6 hours.

Prerequisite: A. I. 33.

3 credits; 2nd semester (Morrison)

132a-b—SPECIAL PROBLEMS IN DAIRYING.

3 credits; each semester (Dairy Staff)

133a-b—SPECIAL PROBLEMS IN POULTRY.

3 credits; each semester (Ringrose)

134—ADVANCED POULTRY PRODUCTION. Fundamental studies in control measures of poultry diseases, nutrition, marketing, flock management and replacement. Lectures, 2 hours; laboratory, 2 hours.

*Prerequisite: A. I. 32.**3 credits; 1st semester (Ringrose)*

136—TECHNICAL CONTROL OF DAIRY PRODUCTS. Various chemical and bacteriological tests used in the control of production or processing of dairy products. Given in alternate years. Laboratory and recitation, 6 hours.

*Prerequisites: A. I. 33, 129. [OFFERED 1939-40]**3 credits; 2nd semester (Morrison)*

137—DAIRY CATTLE BREEDING. The application of genetics to present day problems of breed and herd improvement, an analysis of progress and mistakes of the past compared with present day approved methods of interpreting records, the progeny test of sires type classification, selective registration as employed by leading breeders. The rise and fall in popularity of prominent families and strains within the leading dairy breeds. To be given in alternate years. Lecture, 3 hours.

*Prerequisite: A. I. 19.**3 credits; 2nd semester (Ely)*

202a-b—RESEARCH IN MEATS. Problems involving original investigation.

3 credits; each semester (Wilford)

203a-b—RESEARCH IN ANIMAL GENETICS. Problems involving original investigation.

3 credits; each semester

204a-b—RESEARCH IN DAIRYING. Special problems involving original investigation on the part of the student in either dairy production or dairy manufacturing.

3 credits; each semester (Ely, Morrison)

205a-b—RESEARCH IN HORSE HUSBANDRY. Problems involving original investigation.

3 credits; each semester (Horlacher)

206a-b—RESEARCH IN POULTRY SCIENCE. Problems involving original investigation.

3 credits; each semester (Ringrose)

207a-b—RESEARCH IN SHEEP HUSBANDRY. Problems involving original investigation.

3 credits; each semester (Horlacher)

209a-b—ANIMAL HUSBANDRY SEMINAR.

1 credit; each semester (Staff)

210a-b—RESEARCH IN BEEF CATTLE HUSBANDRY. Problems involving original investigation.

3 credits; each semester (Good, Garrigus)

211a-b—RESEARCH IN SWINE HUSBANDRY. Problems involving original investigation.

3 credits; each semester (Wilford)

ANIMAL PATHOLOGY

116—DISEASES OF DOMESTIC ANIMALS. The course deals with the various infectious and parasitic diseases of animals, their distribution, general nature, methods of dissemination, sanitation, prevention and eradication. The work is presented from the standpoint of hygiene and preventive medicine, special emphasis being placed on the transmissible diseases. Lectures, recitations and reference reading

4 credits; 2nd semester (Dimock)

126—ANATOMY AND PHYSIOLOGY OF DOMESTIC ANIMALS. A study of anatomy and physiology of domestic animals to show the correlation of structure and function of the various organs of the body. The work is outlined so as to give the student an understanding of anatomy and physiology as related to work offered in other courses as livestock judging, butchering, animal nutrition, animal breeding and animal diseases.

4 credits; 1st semester (Hull)

201a-b—INVESTIGATION IN ANIMAL DISEASES. Special problems involving original investigation on the part of the student.

*Prerequisites: 126 and 116,
or equivalent.*

*4 credits; each semester
(Dimock and Staff)*

FARM ECONOMICS

107a—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, crop 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.

1st semester (Nicholls)

107b—SPECIAL PROBLEMS IN FARM MANAGEMENT. A continuation of 107a.

2nd semester (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; the other vital questions of farm organization and management.

Prerequisite: Farm Economics 4. 3 credits; 1st semester

(Bradford)

114—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. 3 credits; 1st semester

(Nicholls)

115—TYPES AND SYSTEMS OF FARMING. Included in this course will be a critical study of the business organization and management of successful Kentucky farms in the several type-of-farming areas of the state. Several field trips will be made to farms whose operators have achieved outstanding financial success while at the same time maintaining or increasing the productivity of their farms. One of these will be a two days trip, the class leaving Friday morning and returning Saturday evening, during which the farms visited will be representative of several of Kentucky's major farming type areas.

Prerequisite: Farm Economics 113. 3 credits; 2nd semester

(Nicholls)

116—LAND ECONOMICS. The course deals particularly with problems of farm ownership and tenancy. Some of the 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 characteristics of such contracts which have been mutually satisfactory to landlords and tenants.

Prerequisite: Farm Economics 113. 3 credits; 1st semester

(Allen)

117a-b-c—CURRENT LAND PROBLEMS. A study of the requirements for and the supply of agricultural land in the United States. A consideration of the contribution of land classification and land use

planning toward the development of socially desirable policies and programs for using natural resources.

1 credit; summer

118—LAND USE, CLASSIFICATION AND PLANNING. This course entails a study of the national needs and national policies which led to the land use pattern of 1930; attention will be given to the social and economic implications of the destruction and loss of soil resources; consideration will be devoted to contribution and limitations of land classification and land use planning toward the development of socially desirable programs and policies for the use of natural resources. In this course particular attention will be paid to the problems of the southern United States, including the cost of maintaining fertility, subsistence farming, needed adjustments in land use, and the forest land use problem.

Prerequisite: Farm Economics 116 3 credits; 2nd semester
and consent of (Allen)
instructor.

119—LAND VALUE AND APPRAISAL. Consideration will be given to the capitalization process, and other devices for valuing farm land; thoroughgoing study will be made of the appraisal procedures of the Federal Land Banks and of other credit institutions; particular attention will be given to special difficulties which arise in appraising and valuing land in the state of Kentucky and in the southern United States.

Prerequisite: Farm Economics 116 3 credits; 2nd semester
and consent of (Allen)
instructor.

140—RURAL SOCIOLOGY. This course deals with the fundamental principles underlying the social organization of country life, and the application of those principles in the development of ways and means of community improvement. Among other matters will be considered the following: Rural vital statistics; the shifting of the rural population; community hygiene and sanitation; good roads; the rural church; the rural school and organization for community betterment. An essential feature of the course will be a study of the student's own community, with a view of recommending action for the betterment of the general social, intellectual, moral and economic conditions.

3 credits; 1st semester

141—RURAL LEADERSHIP AND SOCIAL CHANGE. Rural culture and tradition; social processes in rural life; rural-urban relationships; survey of modern and contemporary changes within the rural community or vitally affecting farm life; special emphasis upon atti-

tudes; personality and the relation of leadership to change; leadership problems and methods in agriculture and rural life.

*Prerequisite: Farm Economics 140, 3 credits; 2nd semester
or consent of
instructor. (Beers)*

142a-b-c—RURAL LIFE. Examination of composition of population; cultures; the family; and rural social institutions, particularly in view of recent changes in local and national rural life.

1 credit; summer (Beers)

145a—SPECIAL PROBLEMS IN RURAL LIFE. Rural community organization, rural migration, and rural institutions such as the family and the church are some of the problems that may be selected.

3 credits; 1st semester

145b—SPECIAL PROBLEMS IN RURAL LIFE. A continuation of 145a.

3 credits; 2nd semester

201a-b-c-d—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.

3 credits; both semesters (Nicholls)

203a—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 reports, are held at each meeting.

1 credit; 1st semester (Staff)

203b—AGRICULTURAL ECONOMICS SEMINAR. A continuation of 203a.

1 credit; 2nd semester (Staff)

204a—ECONOMICS OF AGRICULTURAL PRODUCTION. This course places emphasis upon the fundamental considerations essential to the study of production organization in the economy of modern agriculture. Theoretical analysis will be applied to such questions as the combination of the agents of production, scale and intensity of production, comparative advantage and interregional analysis, and to an evaluation of national agricultural policies and programs. Students will be expected to do supervised investigation of specific problems in the field.

*Prerequisite: Consent
of instructor. 3 credits; 1st semester (MacFarlane)*

204b—ECONOMICS OF AGRICULTURAL PRODUCTION. A continuation of 204a.

3 credits; 2nd semester (MacFarlane)

206—COST, PRICE, AND PRODUCTION RELATIONSHIPS IN AGRICULTURE. Consideration is given to the different concepts of cost which are encountered in the agricultural research field; considerable attention is paid the applicability of the traditional cost-price rationale in the agricultural industry. Members of the seminar will be given an opportunity to appraise the advanced non-mathematical literature in this field.

Prerequisite: Consent of instructor.

3 credits; 2nd
semester (MacFarlane)

240—RURAL ORGANIZATION. Seminar. Organizational behavior of farmers; social analysis of farmers organizations and other rural interest groups, national, state, local; comparative study of group types; trends affecting the social structure of rural communities; agricultural planning in rural communities.

Prerequisite: Consent of instructor.

3 credits; 2nd
semester (Beers)

241—RURAL SOCIAL ATTITUDES. Seminar. The nature and genesis of rural attitudes and their relation to rural social control. Analysis of contemporary rural attitudes and opinions.

Prerequisite: Consent of instructor.

3 credits; 2nd semester

[NOT OFFERED IN 1939-40]

242a—RESEARCH IN RURAL SOCIOLOGY. Individual graduate research with correlated study of rural social research types and methods.

*Prerequisite: Introductory course
in Statistics.*

3 credits; 1st semester

242b—RESEARCH IN RURAL SOCIOLOGY. A continuation of 242a.

3 credits; 2nd semester

FARM ENGINEERING

101a-b—SPECIAL PROBLEMS IN FARM ENGINEERING. This course is a study of one or more problems in the field of agricultural engineering.

Prerequisite: Farm Engineering 10.

3 credits; each semester
(Kelley or Young)

102—DAIRY ENGINEERING. A study of the engineering principles involved in the construction, installation, operation and management of machinery and equipment used in the handling and manufacturing of dairy products. Lectures and recitations, 2 hours; laboratory, 2 hours.

Prerequisite: Farm Engineering 10.

3 credits; 1st semester

(Kelley)

HOME ECONOMICS

105a-b—SEMINAR IN NUTRITION. Investigations of recent research on nutrition. Lecture, 1 hour.

Prerequisite: Senior or graduate standing. 1 credit; throughout year (Erikson)

106a-b—SEMINAR IN TEXTILES AND CLOTHING. Investigations of special textile and clothing problems.

Prerequisite: Senior or graduate standing. 1 credit; throughout year (Seeds-Latzke)

109—NUTRITION. Metabolic processes of the body in normal and disease conditions, correlating the metabolic changes due to disease with diet therapy. The laboratory includes sugar tolerance tests; protein and mineral balance experiments; biological tests for vitamins. It also includes practice in the planning, calculation and preparation of therapeutic diets. Lecture, 2 hours; laboratory, 4 hours.

Prerequisite: Home Economics 124. 4 credits; 2nd semester (Erikson)

112—PUBLIC SCHOOL NUTRITION. 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 program in public schools. The laboratory work includes a health class with public school children. (With special permission from the head of the department, prerequisites may be waived for advanced students.) Lecture, 2 hours; laboratory, 2 hours.

Prerequisite or parallel: Home Economics 124. 3 credits; both semesters (Grundmeier)

115—CHILD CARE AND DEVELOPMENT. Study of the care and training of the child from pre-natal life through the pre-school period; standards for normal development—physical, social, emotional and mental; includes observations of pre-school children and participation in nursery school activities. Meetings with parents are required. Lecture, 2 hours; laboratory, 2 hours.

Prerequisites: Physiology 3, Psychology 7. 3 credits; both semesters (Van Cleve)

116—ADVANCED COSTUME DESIGN. A survey of costume throughout the ages. Planning of modern costumes. Lecture, 2 hours; laboratory, 2 hours.

Prerequisite: Home Economics 29. 3 credits; 1st semester (Seeds)

117—INTERIOR DECORATION. A study of color, line and texture as they are used to create effective interiors suited to modern living. Lecture, 2 hours; laboratory, 2 hours.

Prerequisite: H. E. 26, Art 30b. 3 credits; 2nd semester (Seeds)

119a-b—EXPERIMENTAL COOKERY. Study of factors that affect the results obtained in cooking and food preparation processes. Experimental work is carried out under controlled conditions and special emphasis is placed on physical, chemical and mechanical conditions. Opportunity is given for group and individual problems depending on the interests of the students. Study of food judging and demonstration may be given.

Prerequisites: Chemistry 7; Home Economics 6a; or special permission. 3 credits; each semester (Grundmeier)

121a-b—SPECIAL PROBLEMS. Special problems in undergraduate research.

2 credits; throughout year (Staff)

122a-b—FIELD WORK IN NUTRITION. Nutrition problems at different age levels with emphasis on the child in the public school, correlated with surveys and experimental studies to show the relation between diet selection and its physical and mental effects. Lecture, 1 hour; laboratory, 2 hours.

Prerequisite: H. E. 112 or special permission. 2 credits; throughout year (Grundmeier)

124—DIETETICS. Daily food requirements of human beings at different age levels, emphasis being given to satisfying the divergent needs of families and other groups. Practice is given in normal dietaries for the different ages and different groups. Lecture, 2 hours; laboratory, 4 hours.

Prerequisites: Home Economics 3; Home Economics 6b; A. & P. 3. 4 credits; both semesters (Grundmeier)

125—CONSUMER PROBLEMS. A study of consumer buying and its social and economic aspects. An analysis of the common problems of the manufacturer, the merchant and the consumer in order to understand better the needs and responsibilities of each group. Lecture, 3 hours.

Prerequisite: Econ. 1. 3 credits; 1st semester (Deephouse)

126—FAMILY LIVING. The inter-locking relationships of community and family living. Emphasis is given to the influence of home conditions on the members of the family, and the result of such influence on attitudes and behaviors that affect community living. Lecture, 3 hours.

Prerequisites: Home Economics 41; Home Economics 115; Economics 1; Sociology 1a or Farm Economics 120. 3 credits; both semesters (Van Cleve)

127—ADVANCED CHILD DEVELOPMENT. Detailed study of special features of child development during the pre-school years. Examples of what is found according to the literature are observed

in the nursery school with special reference to body management, posture, expressive movements, language and speech, conduct in novel situations, emotional expression, conduct in relation to companions, and conduct in problem solving situations. Lecture, 1 hour; laboratory, 4 hours.

Prerequisite: Home Economics 115. 3 credits; 2nd semester
(Sandell)

128—ADVANCED CLOTHINGG PROBLEMS. Designed to suit the needs of the individual student. Some suggested problems are children's clothing; tailoring; remodeling; clothing economics; clothing for the family. Lecture, 1 hour; laboratory, 4 hours.

Prerequisite: Home Economics 47. 3 credits; both semesters
(Seeds, Latzke)

142a—HOME MANAGEMENT. The philosophy and principles of home management. A study of the management of resources available to the family for optimal development. Includes the mechanics of time, energy and money management. Emphasis is placed on personal development, social and family relationships. Lecture, 2 hours.

Prerequisites: Econ. 1, 2 credits; throughout year
H. E. 41. (Deephouse)

142b—HOME MANAGEMENT. A residence period in the University Home Management House is required of all seniors in home economics. The course consists of laboratory work affording experience in the application of principles presented in other courses.

Prerequisites: H. E. 142a, 3 credits; throughout year
H. E. 6a and b. (Deephouse)

Prerequisite or parallel: H. E. 124.

178—INSTITUTION ORGANIZATION AND ADMINISTRATION. Principles of institution organization, types of institution service, modern industrial tendencies, advertisement, personnel and financial control. Lecture, 2 hours; laboratory, 2 hours.

Prerequisites: Home Economics 81; 3 credits; 2nd semester
Home Economics 82. (Helton)

179a-b—INSTITUTION MANAGEMENT. Application of scientific principles of institution management. Practice is given in office management and in the different units of service. Lecture, 2 hours; laboratory, 2 hours.

Prerequisite: Home Economics 82. 3 credits; both semesters
(Helton)

180—INSTITUTION EQUIPMENT. Selection, arrangement, cost and care of institution equipment. Problems of lighting, heating, ventilation, refrigeration for institution food preparation and service units. Lecture, 2 hours; laboratory, 2 hours.

Prerequisite: Home Economics 82. 3 credits; 1st semester
(Helton)

201—ADVANCED HOME MANAGEMENT. A lecture course affording opportunity for special study of social and economic problems affecting family life. Lecture, 3 hours.

Prerequisite: Home Economics 142a, b. 3 credits; 2nd semester
(Deephouse)

202a-b—GRADUATE SEMINAR.

2 credits; each semester (Erikson)

204—ADVANCED TEXTILES. Individual term problems.

Prerequisites: H. E. 26, 4 credits; 2nd semester
Econ. 1. (Iatzke)

222a-b—ADVANCED FIELD WORK IN NUTRITION. This course is a continuation of H. E. 122a-b with investigations of recent research in the field. Lecture, 1 hour; laboratory, 2 hours.

Prerequisite: H. E. 112, 2 credits; throughout year
H. E. 122a, or special permission. (Grundmeier)

HOME ECONOMICS EDUCATION (See Education.)

HORTICULTURE

103—POMOLOGY. Pome Fruits. A course dealing with the theory and practice of commercial apple growing. Adaptation, soil relations, fruitfulness and orchard management problems are studied in detail. Lectures, 2 hours; laboratory, 2 hours.

Prerequisite: Horticulture 1. 3 credits; 1st semester (Waltman)

104—POMOLOGY. Stone Fruits. A detailed study of commercial peach, plum and cherry growing. Lectures, 2 hours; laboratory, 2 hours.

Prerequisite: Horticulture 1. 3 credits; 1st semester (Waltman)

105—POMOLOGY. Small Fruits. A detailed study of the care and management of commercial plantings of strawberries, bush fruits and grapes. Lecture, 1 hour; laboratory, 2 hours a week, first half; lecture, 2 hours a week, last half.

Prerequisite: Horticulture 1. 2 credits; 1st semester (Waltman)

[OFFERED 1939-40]

106—GREENHOUSE CONSTRUCTION AND MANAGEMENT. A study of the details of greenhouse construction and management. Lecture, 1 hour; laboratory, 2 hours.

2 credits; 1st semester (Emmert)

[OFFERED 1939-40]

108—VEGETABLE FORCING. A study of the culture of vegetable crops under glass. Lecture, 2 hours; laboratory, 2 hours.

3 credits; 1st semester (Emmert)

110—VEGETABLE GARDENING. A study of the fundamental principles of vegetable growing, and the farmer's home garden. Lecture, 2 hours; laboratory, 2 hours.

3 credits; 1st semester (Emmert)

111—MARKET GARDENING. A detailed study of commercial vegetable growing, with special emphasis on crops suited to Kentucky. Lectures, 2 hours; laboratory, 2 hours.

Prerequisites: Horticulture 108, 110. 3 credits; 1st semester

(Emmert)

113—LANDSCAPE GARDENING. A study of lawns, trees and shrubs and their arrangement for home and school yard planting. Lecture, 2 hours; laboratory, 2 hours.

Prerequisite: Horticulture 1. 3 credits; 2nd semester (Elliott)

114—ADVANCED LANDSCAPE GARDENING. A continuation of 113. Special attention is given to design and the use of plant materials. Lectures, 2 hours; laboratory, 2 hours.

Prerequisites: Horticulture 113, 117. 3 credits; 2nd semester

(Elliott)

115a—SPECIAL PROBLEMS. This course is designed to permit advanced students to make an intensive study of some phase of horticulture in which they are particularly interested. May be taken only with approval of the instructor.

3 credits; either semester (Olney and Staff)

115b—SPECIAL PROBLEMS. A continuation of 115a.

3 credits; either semester (Olney and Staff)

117—FLORICULTURE. A study of the fundamental principles of flower growing under glass and in the garden. Lecture, 2 hours; laboratory, 2 hours.

Prerequisite: Horticulture 1. 3 credits; 2nd semester (Elliott)

118—ADVANCED FLORICULTURE. A detailed study of the culture and arrangement of garden flowers for the home grounds. Lecture, 2 hours; laboratory, 2 hours.

Prerequisite: Horticulture 117. 3 credits; 2nd semester

(Elliott)

119—PLANT PROPAGATION. A detailed study of the principles and methods of propagating plants. Lectures, 2 hours; laboratory, 2 hours.

Prerequisites: Botany 1a and 1b. 3 credits; 2nd semester

(Elliott)

200a—SEMINAR.

1 credit; 1st semester (Olney and Staff)

200b—SEMINAR.

1 credit; 2nd semester (Olney and Staff)

MARKETS AND RURAL FINANCE

108—MARKETING. Principles and methods of marketing farm products; methods of marketing at country points and in central markets; classes and functions of middlemen; marketing specific com-

modities; market prices; marketing costs; and cooperative marketing. Lectures, 3 hours.

Prerequisite: Economics 1.

3 credits; 1st semester

(Price and White)

109—COOPERATIVE MARKETING. Principles, methods and problems involved in the cooperative marketing of farm products; legal, organization, and management problems which cooperatives encounter for different classes of farm products. Lectures, 3 hours.

Prerequisite: M. & R. F. 108. 3 credits; 2nd semester (White)

110—ADVANCED MARKETING. Marketing live stock, dairy products, eggs and poultry; analysis of local and terminal market organization; factors affecting efficiency of business set-up and financial organization of marketing agencies. Lectures, 3 hours.

Prerequisite: M. & R. F. 108. 3 credits; 1st semester (Price)

111—AGRICULTURAL PRICES. A study of the factors influencing prices of farm products, price movements and trends, and price relationships. Methods of price comparison, long-time price movements and cyclical tendencies are reviewed. Lectures, 3 hours.

Prerequisite: Farm Economics 4. 3 credits; 1st semester (Card)

112—FARM FINANCE. Principles of financing the production and marketing of farm products; credit needs of agriculture, including short-time, intermediate and farm mortgage-credit requirements; organization and operation of the federal farm loan system, and other agencies which furnish credit for agriculture. Lectures, 3 hours.

Prerequisite: Farm Economics 4. 3 credits; 2nd semester

(Clark)

113—AGRICULTURAL STATISTICS. Sources, methods of presentation and analysis of agricultural statistics with special reference to agricultural census and crop and live stock estimates; collection, tabulation and graphic presentation of data; measures of dispersion, index numbers, trends and correlation. Lectures, 2 hours; laboratory, 2 hours.

Prerequisite: Economics 1.

3 credits; 1st semester (Card)

114—AGRICULTURAL STATISTICS. Sources, methods of presentation and analysis of agricultural statistics with special reference to agricultural census, crop and livestock estimates; collection, tabular and graphic presentation of data; index numbers; analysis of time series; simple graphic curvilinear correlation.

Prerequisite: Mathematics

2 credits; 1st semester (Card)

24 or 124.

131—ADVANCED AGRICULTURAL PRICES. A review of price theory and statistical method with special reference to research in agricultural prices; analysis of various price studies with reference

to the theory upon which they are based, research method used and reliability of conclusions drawn. Lectures, 2 hours.

Prerequisites: M. & R. F. 111-113 2 credits; 1st semester or Commerce 107. (Card)

132a-b-c—CURRENT PROBLEMS IN AGRICULTURAL ECONOMICS. This course emphasizes recent developments in agricultural marketing, production and credit. Especial consideration of federal production adjustment programs, organization of agricultural credit, marketing agreements and cooperation.

Prerequisite: Farm Economics 4. 1 credit (Price)

133—AGRICULTURAL POLICY. General development of the principles underlying agricultural policy, including analysis of the place of agriculture in the general economy, goals or objectives of agricultural policy; causes and development of the present agricultural problem; appraisal of current or proposed programs, and legislation for remedial action.

Prerequisite: Farm Economics 4. 3 credits; 2nd semester (Price)

202a-b—SPECIAL PROBLEMS IN MARKETING AND RURAL FINANCE. Open to graduate students who have the necessary training and ability to do research on individual problems. The course consists of individual work on some selected problem related to agricultural marketing or agricultural finance.

Prerequisite: Approval of head of department. 3 credits; each semester (Price and Staff)

203a-b—SEMINAR. Analysis of current problems in field of marketing and rural finance.

1 credit; each semester (Price and Staff)

204—RESEARCH IN MARKETING. Types of research in marketing. Laying out the research project. Analysis of data.

Prerequisite: M. & R. F. 108. 2 credits; 2nd semester (Price)

VI. EDUCATION

GENERAL STATEMENT OF REGULATIONS GOVERNING GRADUATE WORK IN THE COLLEGE OF EDUCATION

Work leading to the Doctor's degree with a major in education must conform to the same rules and regulations as prescribed in the general requirements, pages 10 to 14 of this bulletin.

The regulations governing graduate work leading to the degree of Master of Arts in Education and to the degree of Master of Science in Education are as follows:

1. Of the graduate work offered by any candidate for the master's degree for majors in education, 12 semester hours must be in courses at the "200" level or above for persons completing the degree requirements on the 24-hour basis and 18 semester hours must be in courses at the "200" level or above for persons completing the degree requirements on the 36-hour basis.
2. The total number of credits (graduate and undergraduate combined) in education offered by any candidate for the master's degree must be at least 30 semester hours. The number of graduate credits in education must be at least 12 hours for students graduating on the 24-hour basis and at least 18 hours for students graduating on the 36-hour basis.
3. Two plans are provided for the work which leads to the master's degree:
 - A. The first plan consists of 24 semester hours of graduate work with an average standing of B or better, 36 weeks of residence, and the writing of a thesis.
 - B. The second plan requires the completion of 36 semester hours of graduate work with an average standing of B or better, 48 weeks of residence and no requirement of a thesis. Both plans involve the passing of an oral and a written examination over the field of education and an oral examination in the minor field, if any.
4. If a student desires to qualify for the Master of Arts or the Master of Science degree rather than for the Master of Arts in Education or the Master of Science in Education, he must satisfy the language requirement.

Candidates for the Doctor's degree who major in the College of Education at the University of Kentucky, to satisfy the one-year minimum residence requirement, shall be in attendance at the University of Kentucky two full semesters during the regular year, at least one semester of which shall be done during the last two years of work

toward the doctorate degree. This requirement shall apply to all candidates whose committees had not been approved by September 1, 1935.

EDUCATIONAL ADMINISTRATION

101—SCHOOL ORGANIZATION. A course designed to familiarize the prospective teacher with those activities of school organization and administration in which he may be expected to participate. Topics emphasized are administrative control, selection of teachers, tenure, loads, salaries, retirement, supervision, classification and promotion, attendance, community relationships, and professional ethics.

3 credits (Seay)

148—ADVISERS OF GIRLS AND DEANS OF WOMEN. This course is designed for teachers, advisers of girls, and deans of women with particular reference to the needs of Kentucky schools. Some of the problems studied are: the adjustment of students; the aims, organization, and content of the extra-curricular program; the technique of counseling; work with groups; student government; vocational and educational guidance; record forms and office organization.

3 credits (Holmes)

198—THE ADMINISTRATION OF PUPIL PERSONNEL. This course deals with the school census, enforcement of attendance, personnel records, marking, pupil progress, and classification. The course is designed primarily for prospective superintendents and attendance officers.

3 credits (Seay)

202—LOCAL SCHOOL ADMINISTRATION. A general course in public school administration for the prospective superintendent of a county or city school system. The course deals with the state as an educational agency, the local school district, the board of education, the superintendent, the internal organization for the administration of a school system, problems of the teaching personnel, problems of pupil personnel, business management, finance and accounting, the curriculum, school building planning and management and the supervision of instruction. This is one of the basic courses in school administration and should be taken at or near the beginning of the student's graduate program.

3 credits (Seay or Hill)

203—CONSTITUTIONAL AND LEGAL BASIS OF PUBLIC SCHOOL ADMINISTRATION. A study of court decisions in order to discover the legal principles involved in practical problems of school administration. Topics: The school and the state; school districts; school officers; relations of school districts and municipalities; authority of school districts and district officers; school board procedure and records; tort liability of school districts; personal liability of school officers; contractual authority and liability of boards of education;

school money; the school debt; acquisition and use of school property; employment and dismissal of teachers; school attendance; rules and regulations of school boards; discipline and punishment of pupils; textbooks and studies.

Prerequisite: Education 202 or 213 or 232. 3 credits (Ligon)

206—PROBLEMS OF COLLEGE TEACHING. This course covers among others the following topics: Methods commonly used in college teaching; bases for measuring instruction; marking systems; qualifications for college teaching; and efforts being made to improve college instruction.

3 credits (Taylor)

207—SCHOOL BUILDINGS AND EQUIPMENT. The major topics considered are the measurement and evaluation of existing building facilities, planning new school buildings, financing the building program, and building operation and maintenance. The student should have had considerable graduate work in education before enrolling in this course.

Prerequisite: Education 202 or its equivalent. 3 credits (Chamberlain)

210—SPECIAL PROBLEMS IN SCHOOL ADMINISTRATION. An independent work course for students doing their first year of graduate work in education.

Prerequisite: Education 101 or 202. 3 credits (Seay)

211—THE ADMINISTRATION OF VOCATIONAL EDUCATION. A course designed for superintendents and principals of high schools. The purpose of the course is to train for administering and supervising vocational education. Topics emphasized include aims and purposes of vocational education, relationship of vocational to other education, financing vocational education, and relationship of local to state administration.

3 credits (Hammonds)

212—THE ELEMENTARY SCHOOL. This course is designed to help the superintendent, elementary principal, and elementary supervisor in a better understanding of the modern elementary school. The activity program, objectives, research and study in the skills and content subjects of the elementary curriculum are discussed from the standpoint of supervision.

3 credits (Duncan)

213—STATE SCHOOL ADMINISTRATION. The administration of American education from the standpoint of the federal and state governments. The course deals with federal relations to education, the state as an educational agency, local units for the administration of education, the scope of the school system, state school support, state control of the material environment and equipment, the training and certification of teachers, and teachers' contracts, tenure and retirement.

3 credits (Seay)

214—THE SECONDARY SCHOOL. This course is designed to acquaint the prospective principal or superintendent with the nature and function of the secondary school. This is one of the basic courses in the field of administration and should be taken at or near the beginning of the student's graduate program.

3 credits (Ligon)

221a-b—SEMINAR IN ADMINISTRATION. A critical study of selected problems in school administration.

3 credits (Staff)

225—SUPERVISION OF INSTRUCTION. Topics considered are the development of supervision, purpose of supervision, organization for supervision, planning supervision, use of classroom visitation and demonstration lessons, use of teachers' meetings and individual conferences, use of the course of study, use of tests and measurements, equipment and supplies, the teacher and the pupil. The student should have had Education 202 or its equivalent before enrolling in this class.

3 credits (Seay or Hill)

229—THE ELEMENTARY PRINCIPAL. This course deals with problems related to the elementary principalship, such as the professional preparation, selection and status of the principal; relation to other administrative officers, supervisors, teachers, pupils and parents; problems of attendance, discipline, health and records; the application of sound principles to the improvement of teaching. Emphasis will be placed on the community relationship of elementary principals and teachers and ways in which they may cooperate and improve the life of the community. Attention will also be given to problems presented by members of the class as outgrowth of their experiences.

3 credits (Duncan)

231—FINANCING PUBLIC EDUCATION. Topics covered are budgetary procedure, school costs, school indebtedness, state finance, fiscal reports, and accounting procedures. These topics are treated primarily from the viewpoint of the superintendent of schools. The student should have had Education 202 or its equivalent before enrolling in this class.

3 credits (Hill)

232—HIGH SCHOOL ADMINISTRATION. A course designed primarily for high school principals and prospective administrators. Topics emphasized are secondary school organization, the principal, the staff, the pupil, program of studies, schedules, community relationships, records and reports, articulation, library, plant, finance, and the aims of secondary education.

3 credits (Ligon)

233—THE ADMINISTRATION OF THE TEACHING PERSONNEL. A specialized course in school administration, primarily for

prospective superintendents. The course will emphasize principles and practices in teacher preparation, teacher selection and placement, measurement of teaching efficiency, salaries, tenure, retirement, teaching loads, sick leave and related problems and personnel records.

3 credits (Hill or Chamberlain)

236—BUSINESS ADMINISTRATION OF PUBLIC EDUCATION.

A specialized course for prospective superintendents covering the following aspects of school administration: The organization for business management; the scope of business administration; appraisal, depreciation and insurance of school property; maintenance of the school plant; plant operation; selection, training and pay of the custodial staff; purchase and management of supplies; textbook management; selection and purchase of equipment; inventories; and transportation.

3 credits (Seay)

238—TRENDS IN HIGHER EDUCATION. This course will survey modern tendencies in American higher education in the following areas: Scope and development, objectives, organization, administration, curricula, finance, and faculty and student personnel. It is designed to serve the needs of present and prospective college administrators and teachers and others interested in developments in higher education. For those desiring special instruction in the work of the registrar a program of laboratory work will be arranged.

3 credits (Chamberlain)

239—THE ADMINISTRATION OF PUBLIC SCHOOLS IN RELATION TO OTHER AGENCIES. This course deals with the relationship of public schools with other agencies and services, such as the public health service, the agricultural extension service, employment bureaus, public libraries, parent-teacher associations, and professional organizations of teachers. A study is made of the functions and organization of such agencies. The general aim of the course is to give the school administrator an understanding of the social agencies which should be included in the total education program of a community.

3 credits (Seay)

276—ADMINISTRATIVE PROBLEMS IN TODAY'S EDUCATION. This course has to do with present-day problems of persons in administrative positions in public education. It is designed to be of assistance particularly to superintendents of schools.

3 credits (Seay)

301a-b—RESEARCH PROBLEMS IN EDUCATIONAL ADMINISTRATION. An independent research course. The student will confer with the instructor whenever either or both of them deem it advisable

Prerequisite: One year of graduate work.

3 credits (Seay)

307a-b—RESEARCH PROBLEMS IN SECONDARY EDUCATION
Same type of course as Education 301.

Prerequisite: One year of graduate work. 3 credits (Ligon)

308a-b—RESEARCH PROBLEMS IN ELEMENTARY EDUCATION. Same type of course as Education 301.

Prerequisite: One year of graduate work. 3 credits (Duncan)

321a-b—RESEARCH PROBLEMS IN HIGHER EDUCATION.
Same type of course as Education 301.

Prerequisite: One year of graduate work. 3 credits
(Taylor and Chamberlain)

AGRICULTURAL EDUCATION

179—DETERMINING CONTENT IN VOCATIONAL AGRICULTURE. Interpreting data as a basis for course building. Working out the content of a four-year course in vocational agriculture.

3 credits (Hammonds)

181—TEACHING VOCATIONAL AGRICULTURE. Designed to prepare men for the teaching of agriculture. About one-half of the course is practice.

7 credits (Hammonds, Hilton, Robbins, and Tabb)

182—EVENING SCHOOL AND PART-TIME COURSES IN AGRICULTURE. A general introduction to evening school and part-time work with some observation of work in both of these fields.

2 credits (Hammonds)

188—FARM PRACTICE SUPERVISION. Practice and directed study in supervising farm practice of pupils in vocational agriculture.

1 credit (Hammonds, Woods and Armstrong)

280—METHOD IN TEACHING VOCATIONAL AGRICULTURE. The principles of method are applied to the teaching of agriculture. For men with experience in teaching vocational agriculture.

3 credits (Hammonds)

281—TEACHING PREVOCATIONAL AGRICULTURE. Each student works out the content of a course in prevocational agriculture, including selecting the teaching materials. Aims, purposes, and methods of teaching are considered.

3 credits (Woods)

287a—ADVANCED PROBLEMS IN AGRICULTURE EDUCATION. The specific problems considered vary according to the needs of the group.

3 credits (Hammonds and Woods)

287b—SELECTING TEACHING MATERIALS. Specific references and other teaching materials are selected to be used in the teaching of vocational agriculture.

3 credits (Armstrong)

287c—EVENING SCHOOLS. Designed to prepare men to teach adult farmers. Includes organizing the school, determining content, method of teaching, follow-up work.

3 credits (Hammonds and Woods)

287d—DIRECTING FARM PRACTICE. Considers farm practice as a method of teaching. Takes up standards, planning, supervision, records.

3 credits (Hammonds)

287e—TEACHING FARM SHOP. Includes determining content for shop, securing and equipping the shop, and methods of teaching farm shop.

3 credits (Woods)

287f—PART-TIME SCHOOLS. Determining content and teaching part-time courses in vocational agriculture.

3 credits (Hammonds and Woods)

289—RESEARCH IN AGRICULTURAL EDUCATION. The student works on some problem of importance to agricultural education.

3 credits (Hammonds and Woods)

BUSINESS EDUCATION

104—FOUNDATIONS OF BUSINESS EDUCATION IN THE HIGH SCHOOL. This course is designed to give to the student preparing to teach commerce in the high school an understanding of the origin, the status, and the objectives of business education in the secondary school.

3 credits (Lawrence)

158a—METHODS OF TEACHING SECRETARIAL SUBJECTS. Special techniques and devices for teaching shorthand, typewriting, and secretarial office practice are considered.

2 credits (Lawrence)

158b—METHODS AND MATERIALS IN TEACHING ACCOUNTING. This course provides materials and techniques in the teaching of accounting.

184—TEACHING OFFICE APPLIANCES. Methods and materials to be used in teaching the various office appliances to high school pupils. Dictating machines, mimeographs, multigraphs, graphotypes, mimeoscopes, addressing machines, filing, calculating machines, and other appliances will be used.

1 credit (Lawrence and Guy)

192—METHODS AND MATERIALS IN GENERAL BUSINESS. Objectives of the general business course are studied critically and a syllabus prepared for teaching this subject.

3 credits (Lawrence)

208a—PROBLEMS IN BUSINESS EDUCATION. Some of the more advanced problems in the field are studied. The type of prob-

lems considered is influenced by the interests and needs of the group. Some of these problems are: testing in business subjects; extra-curricular activities in commerce; job studies; placement and follow-up; types of equipment; and supervision.

3 credits (Lawrence)

208b—PROBLEMS IN BUSINESS EDUCATION. This course is a continuation of Education 208a with special emphasis on research studies already made and research techniques.

3 credits (Lawrence)

256—METHODS AND MATERIALS IN THE SOCIAL BUSINESS SUBJECTS. The various social business subjects will be examined to determine their contribution to the objectives of business education.

3 credits (Lawrence)

257a-b—SEMINAR IN BUSINESS EDUCATION. A study of current literature in business education with special reference to trends in this field.

1 credit (Lawrence)

259—THE COMMERCE CURRICULUM. Business subjects offered in the high school are examined critically to determine their content and the place each should occupy in high school curricula. A course of study is developed for each subject.

3 credits (Lawrence)

260—TEACHING CONSUMER COURSES IN THE HIGH SCHOOL. This course is designed to provide techniques and devices for teaching pupils in high school the various aspects of consumer education. The emphasis is placed on procedures rather than on content and the student is presumed to have a background of training in economics before taking the course.

2 credits (Lawrence)

DISTRIBUTIVE OCCUPATIONS

112—DETERMINING TEACHING CONTENT IN DISTRIBUTIVE OCCUPATIONS. This course is planned to meet the needs of persons engaged as instructors in the field of distributive occupations. It will cover the analysis and course construction in the field of distributive occupations.

3 credits (Baker)

116—PROBLEMS OF THE COORDINATOR IN DISTRIBUTIVE OCCUPATIONS. The purpose of this course is to discuss some of the problems facing the coordinator as he acts in the capacity of intermediary between the school and the business world. Problems in placing students in stores, problems in follow-up methods, problems in store contacts and problems in securing the cooperation of personnel management will be discussed.

3 credits (Baker)

128—TECHNIQUE OF TEACHING DISTRIBUTIVE OCCUPATIONS. This course is a study of the methods of teaching as applied to distributive occupations education. The purpose of the course is to train prospective teachers to teach in the field of distributive occupations.

3 credits (Baker)

EDUCATIONAL PSYCHOLOGY

118—EDUCATIONAL TESTS AND MEASUREMENTS FOR ELEMENTARY TEACHERS. The problems of measurement in the elementary school; formal and informal tests, marking systems, etc.

Prerequisite: One semester of Psychology. 2 credits (Ross)

119—FOUNDATIONS OF ELEMENTARY EDUCATION. The psychology of the child in the primary and intermediate grades.

Prerequisite: One semester of Psychology. 3 credits (Ross)

122—EDUCATIONAL TESTS AND MEASUREMENTS FOR HIGH SCHOOL TEACHERS. The problems of measurement in the junior and senior high school, with special emphasis on standardized tests. The construction and use of new type tests, use and limitations of traditional examinations, marking systems, etc.

Prerequisite: One semester of Psychology. 3 credits (Ross)

147—FOUNDATIONS OF SECONDARY EDUCATION. The psychology of the student in junior and senior high school.

Prerequisite: One semester of Psychology. 3 credits (Ross)

254—PROBLEMS IN EDUCATIONAL PSYCHOLOGY. A critical survey of the conflicting schools of psychology, theories of learning, etc.

Prerequisite: Education 16. 3 credits (Ross)

216—SEMINAR IN TESTS AND MEASUREMENTS. A critical study of certain problems in measurement. Individual work.

Prerequisite: Education 122. 3 credits (Ross)

223—EDUCATIONAL STATISTICS. A non-mathematical study of the applications of statistical and graphical methods to educational data.

3 credits (Ross)

ELEMENTARY EDUCATION

110—ADVANCED INDUSTRIAL ARTS. This course will deal primarily with the industrial process involved in records and shelter suitable for classroom experimentation. As a result of work in this course the teacher should be able to guide children in the construction

activities pertaining to the study of records and shelter. Some of the experiences he will receive will be in the fields of book binding, block printing, paper decorating, toy making, elementary woodwork, and interior decorating.

2 credits (Haines)

133—DIRECTED TEACHING IN THE ELEMENTARY SCHOOL. Supervised teaching in Kindergarten or Grades I to VI. The student must spend from 9:00 a. m. until 2:00 p. m. in the classroom for the semester. One hour per day additional (2:00 p. m. to 3:00 p. m.) is spent in conference and discussion with the critic teacher and supervisor. The student may take only two additional courses (3 credits each) this semester and these classes must be taken either the first, seventh, or eighth hours. A student who has had three credits in practice teaching may take this course with reduced hours and reduced credits. This course is designed to give the student experience with and practice in the program for the whole day in a modern elementary school.

10 credits (Duncan and Training Teachers)

141—PROBLEMS IN DIAGNOSTIC AND REMEDIAL READING. A laboratory course in problems of prevention, diagnostic and remedial work in reading. An opportunity will be provided to observe demonstrations of the use of instrumentation in diagnosis and correction of reading difficulties and the application of these clinical procedures to problem cases.

3 credits (Duncan)

172—TEACHING READING IN THE ELEMENTARY SCHOOL. A practical application of principles derived from psychology and research. Discussion of aims, primary reading, activities leading to reading, reading in the intermediate grades, oral and silent reading, phonics, diagnostic and remedial work, means of testing and suitable material for each grade.

3 credits (Duncan)

173—TEACHING LITERATURE TO CHILDREN. A study of the literature for children from kindergarten to Grade VI. Reading and book reports from various types, folklore, modern fantastic tales, poetry, realistic stories, biography, myths, and legends. Children's interests at different ages and stages of development; story telling and dramatization.

3 credits (Duncan)

174—PRE-SCHOOL THEORY AND MANAGEMENT. A study of the nature, development, care and training educationally of the pre-school child. Emphasis will be placed on the formation of proper emotional and social habits and standards for right environment set-up. Students will schedule regular periods for observation and assistance in the Kindergarten (by appointment).

4 credits (King)

176—PRE-SCHOOL ORGANIZATION AND TEACHING. A study of the pre-school movement in Europe and America. A study of the organization, equipment curriculum and methods of pre-school teaching. Students taking this course will schedule regular periods (by appointment) for observation and assistance in the University Kindergarten.

4 credits (King)

196—SCIENCE IN THE ELEMENTARY SCHOOL. This course is planned to give a background of elementary science usable with children in the first six grades. The course includes planning units of work, organizing and using materials and references, use of illustrative material, excursions, and making bibliographies for teachers and children.

3 credits (Estelle Adams)

212—THE ELEMENTARY SCHOOL. This course is designed to help the superintendent, elementary principal, and elementary supervisor in a better understanding of the modern elementary school. The activity program, objectives, research and study in the skills and content subjects of the elementary curriculum are discussed from the standpoint of supervision.

3 credits (Duncan)

224a-b-c—ORGANIZATION AND SUPERVISION OF STUDENT TEACHING. This course has been planned for students preparing to do critic teaching in the fields of elementary and secondary education. Education 224a is a general course that will include the basic principles underlying the entire program. Education 224b will have to do with specific problems for critic teachers on the secondary level, while Education 224c will deal with problems on the elementary level.

3 credits each (Williams, Duncan)

229—THE ELEMENTARY PRINCIPAL. This course deals with problems related to the elementary principalship, such as the professional preparation, selection and status of the principal; relation to other administrative officers, supervisors, teachers, pupils and parents; problems of attendance, discipline, health and record; the application of sound principles to the improvement of teaching. Emphasis will be placed on the community relationship of elementary principals and teachers and ways in which they may cooperate and improve the life of the community. Attention will also be given to problems presented by members of the class as outgrowth of their experiences.

3 credits (Duncan)

308a-b—RESEARCH PROBLEMS IN ELEMENTARY EDUCATION. An independent research course. The student will confer with the instructor whenever either or both of them deem it advisable.

Prerequisite: One year of graduate work.

3 credits (Duncan)

HISTORY OF EDUCATION

117a—HISTORY OF EDUCATION. This course is a survey of the history of secondary education from the Greek period to the present time.

3 credits (Patrick)

117b—HISTORY OF EDUCATION. A survey of the history of elementary education beginning with Athenian education and closing with present elementary education in America.

3 credits (Patrick)

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 education.

3 credits (Patrick)

219—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.

3 credits (Patrick)

220—COMPARATIVE EDUCATION. A course giving comparisons of systems of education.

3 credits (Taylor)

235—HISTORY OF EDUCATION IN KENTUCKY. A course designed to give the student an historical background of education in Kentucky.

3 credits (Patrick)

237a-b—RESEARCH IN HISTORY OF EDUCATION. An independent work course for students in history of education.

3 credits (Patrick)

HOME ECONOMICS EDUCATION

160—TECHNIQUE OF TEACHING HOME ECONOMICS. A study of methods of teaching as applied to home economics.

Prerequisites: Home Economics 26, 6a and b, 29, 3, 51; Education 147. 3 credits (Parker or Spickard)

162—DIRECTED TEACHING IN HOME ECONOMICS. Practical application of methods in teaching various phases of home economics.

Prerequisite: Education 160. 6 credits (Parker or Spickard)

164—METHODS OF TEACHING CHILD CARE. A critical evaluation of subject matter in child care and methods of presenting it to high school pupils.

Prerequisite: Home Economics 115 or equivalent. 3 credits (Parker or Spickard)

165a-b—PROBLEMS IN VOCATIONAL EDUCATION. This course deals with the problems involved in teaching vocational homemaking in day, part-time, and evening schools.

3 credits (Parker or Spickard)

178—METHOD OF TEACHING HOME MANAGEMENT AND FAMILY RELATIONS IN JUNIOR AND SENIOR HIGH SCHOOL. This course deals with the selecting of subject matter and methods suitable for junior and senior high school pupils.

Prerequisites: Home Economics 42;
experience in teaching.

3 credits
(Parker or Spickard)

261—HOME ECONOMICS SUPERVISION. A course planned primarily to help prepare teacher trainers and supervisors of home economics education.

Prerequisites: Education 160, 162,
experience in teaching and
approval of instructor.

3 credits
(Parker or Spickard)

263—CURRENT PROBLEMS IN HOME ECONOMICS EDUCATION. A study of some recent developments in the field of home economics education.

Prerequisites: Education 160 and 162;
experience in teaching.

3 credits
(Parker or Spickard)

264—MODERN TENDENCIES IN HOME ECONOMICS EDUCATION. This is a basic course for graduate students in home economics education. It is designed to acquaint students with modern tendencies in education. Some problems considered are the contribution of home economics to the general education of boys and girls, evaluation, and integration.

3 credits (Parker)

266a-b-c—SEMINAR IN HOME ECONOMICS EDUCATION. Provision is made in each course for students to make individual investigations and report on special problems in home economics education.

3 credits (Parker or Spickard)

267—DIRECTED SUPERVISION IN HOME ECONOMICS EDUCATION. This course includes teaching home economics classes for observation, directing student teachers under the guidance of a supervising teacher, visiting schools with the itinerant teacher trainer in different sections of the state, and organizing teaching materials. This course may be taken parallel to or following Education 261.

Prerequisites: Two years' teaching experience
and recommendation by the Department of Home Economics Education.

3 credits
(Parker or Spickard)

268—HOME ECONOMICS CURRICULUM CONSTRUCTION. A study of the underlying principles of curriculum building for junior and senior high school home economics.

Prerequisites: Education 160, 162.

3 credits
(Parker or Spickard)

269—ACHIEVEMENT TESTING IN HOME ECONOMICS. This course is intended to acquaint teachers of home economics with techniques used in measuring attainment in home economics in the junior and senior high school and college.

Prerequisite: Teaching experience.

3 credits (Parker)

INDUSTRIAL EDUCATION

108—COORDINATION TECHNIQUES IN INDUSTRIAL EDUCATION. This is a course designed to meet the needs of persons functioning as coordinators in part-time or evening industrial education. It analyzes the social, educational, and economic responsibilities of the coordinator and ties up these findings with the local school program in a better system of student training and student accounting.

2 credits (May)

123—VOCATIONAL GUIDANCE. A course designed to give teachers, principals, superintendents and welfare workers a comprehensive view of the factors in vocational guidance, the agencies contributing to or influencing life choices and an analysis of the human and economic resources of a given civic unit.

3 credits (May)

143—MODERN INDUSTRIAL ANALYSIS. This course is designed to meet the needs of persons who wish to secure a working knowledge of modern industrial organization, trends in industrial educational policies, and the proper approach to and analysis of these problems as they affect the industrial vocational teacher.

2 credits (May)

170—PART TIME GENERAL CONTINUATION TEACHER TRAINING. This is an analysis of the problems of the continuation school as they affect teacher preparation for the part-time program.

3 credits (May)

171—VOCATIONAL EDUCATION. This course is planned primarily for the advanced student in industrial education. It covers the general philosophy of vocational education as it is tied up with the problems and principles of industrial education.

2 credits (May)

183—METHODS IN INDUSTRIAL EDUCATION. This course is planned to give the student a working knowledge of the most approved methods in instructional management, including lesson planning, in the field of vocational industrial education.

3 credits (May)

PHILOSOPHY OF EDUCATION

114—EDUCATIONAL SOCIOLOGY. A study in the application of sociological findings to the field of education within the school and home.

3 credits (Patrick)

127a—THE ELEMENTARY CURRICULUM (For Elementary Teachers). A study of the philosophy and technics of curriculum construction and some practical work in construction.

3 credits (Haines)

175a-f—MODERN EDUCATIONAL PROBLEMS. A brief survey of some of the problems in modern education.

3 credits each

175g—MODERN EDUCATIONAL PROBLEMS (Education of Handicapped Children). A discussion of procedures to be used in the education of the group of children who are handicapped physically, mentally, and emotionally. Attention will be given to work with individual children who are home-bound as well as with groups.

3 credits

175h—MODERN EDUCATIONAL PROBLEMS (Problems in Educational Radio Broadcasting). This course is designed to acquaint teachers and school administrators with the problems and techniques of broadcasting educational programs. Actual practice with the principles and methods of preparing, producing, and broadcasting educational material will be given. A part of the time of the course will be given to the use of the radio in schools.

3 credits

186—VISUAL TEACHING. A course in methods and technique of visual instruction. Special emphasis is placed on charts, slides, graphs, maps, still pictures, motion pictures, and other visual aids, their effective use in teaching and the planning of outlines and lessons involving their use. Attention will also be given to the administration of visual aids in the school.

3 credits (Clifton or Starnes)

200—ADVANCED COURSE IN PHILOSOPHY OF EDUCATION. This is an advanced course dealing with the philosophy underlying the larger educational problems of today.

Prerequisite: 12 hours in education.

3 credits (Adams)

205—REVIEW OF CURRENT EDUCATIONAL LITERATURE. An extensive study of current educational literature as found in educational periodicals.

Prerequisite: 12 hours in education.

3 credits (Adams)

222—METHODOLOGY OF EDUCATIONAL RESEARCH. This course is intended to acquaint the student with the various techniques of research and to aid him in methods of attack on his own particular research problems.

Prerequisite: 12 hours in Education.

3 credits (Taylor)

227a—PRINCIPLES OF CURRICULUM CONSTRUCTION. A survey of modern curriculum making as carried on in progressive city school systems, laboratory schools and state school systems. Also an

intensive study of the principles underlying curriculum revision.

Prerequisites: Teaching experience 3 credits (Adams)
and 12 hours in Education.

227b—TECHNIQUES IN CURRICULUM CONSTRUCTION. This course has to do with the techniques being used to determine content of courses of study.

Prerequisites: Teaching experience; 3 credits (Adams)
12 hours Education.

228a-d—SEMINAR IN EDUCATION. This course has been planned for graduate students majoring in education, to be given under the direction of the faculty of the College of Education.

1 credit each

230—PROBLEMS OF EDUCATIONAL SOCIOLOGY. An advanced course in the application of sociology to the educational field.

Prerequisite: 12 hours Education, 3 credits (Patrick)
including Education 114.

240—CHARACTER EDUCATION. This course will make an extensive survey of plans and methods of teaching character education in the best public school systems. It will take up such points as the relation between character and conduct, how character is correlated with intrinsic and extrinsic learning, the direct and indirect methods of presentation, and the contribution which other institutions than the school should make to character education.

3 credits

245—ORGANIZATION OF AUDIO-VISUAL AIDS. The topics to be covered in this course are: beginning the audio-visual program, qualifications and duties of the audio-visual aids, sources and criteria for judging equipment and supplies, the audio-visual aids budget, projection mechanics, in-service teacher training.

3 credits (Clifton and Starnes)

246—MOTION PICTURES IN EDUCATION. The topics covered are: the history of the educational motion picture, technique in the use of films, educational scenario writing, grading and scoring films, motion picture appreciation.

3 credits (Clifton and Starnes)

SECONDARY EDUCATION

105—FUNDAMENTALS OF SECONDARY EDUCATION. Deals with laboratory methods of instruction. Units: fundamental processes, control, operation, administration.

3 credits (Ligon)

107—SAFETY EDUCATION. This course is designed to give teachers the knowledge, techniques, and skills for the teaching of safety education in all its aspects. Particular emphasis will be placed on driver education and the problems related thereto.

3 credits (Mitchell)

111—REMEDIAL READING IN THE SECONDARY SCHOOL.

A study of diagnostic and remedial work with reading disability cases in the junior and senior high school. This course is designed to enable the teacher to diagnose reading difficulties and to remedy them. Observation, case studies, and practice in remedial work with children will be required of all students. The course includes a critical study of the investigations and literature in the field.

2 credits (Duncan)

123—VOCATIONAL GUIDANCE. A course designed to give teachers, principals, superintendents and welfare workers a comprehensive view of the factors in vocational guidance, the agencies contributing to or influencing life choices and an analysis of the human and economic resources of a given civic unit.

3 credits

142—DIRECTED TEACHING IN ART. This course has been planned for teachers who contemplate becoming supervisors of art in the public schools.

Prerequisites: Education (see Professional Major) and 18 hours in Art. 6 credits (Haines)

153—DIRECTED TEACHING IN ENGLISH. Topics: course of study, minimum essentials, materials, methods, testing. Part I, languages and composition; Part II, literature. Observation and practice, five hours; conference, two hours.

Prerequisites: Education (see Professional Major) and 18 hours in English. 6 credits (Anderson and Shipman)

154—DIRECTED TEACHING IN FOREIGN LANGUAGES.

Topics: aims and objectives, course of study, methods, tests, equipment, analysis of textbooks. Observation and practice, five hours; conference, two hours.

Prerequisites: Education (see Professional Major) and 18 hours in subject to be taught. 6 credits (West and Topham)

155—DIRECTED TEACHING IN THE SCIENCES.

Topics: aims and objectives, courses of study, methods, tests, equipment. General science, biology, physics, and chemistry. Observation and practice, five hours; conference, two hours.

Prerequisites: Education (see Professional Major) and 18 hours in subject to be taught. 6 credits (Kemper and Keffer)

156—DIRECTED TEACHING IN MATHEMATICS.

Topics: course of study, materials, methods, testing. Observation and practice, five hours; conference, two hours.

Prerequisites: Education (see Professional Major) and 18 hours in Mathematics. 6 credits (Mitchell and Keffer)

157—DIRECTED TEACHING IN THE SOCIAL STUDIES. Topics: objectives, preparation of the teachers, courses of study, methods, supplementary materials, visual instruction, testing and professional helps. Observation and practice, five hours; conference, two hours.

Prerequisites: Education (see Professional Major) and 18 hours in subject to be taught. 6 credits (Peck and Shipman)

169a—DIRECTED TEACHING IN PHYSICAL EDUCATION. This course has been planned for students who desire to become directors of physical education and coaches of athletics in the public schools.

Prerequisites: Education (see Professional Major) and 18 hours in Physical Education. 3 credits

169b—DIRECTED TEACHING IN PHYSICAL EDUCATION. A continuation of Education 169a.

3 credits

177a—DIRECTED TEACHING IN MUSIC. This course has been planned for teachers who contemplate becoming supervisors of music in the public schools.

Prerequisites: Psychology 7, Education 44, 101, 147, and 18 hours in Music. 3 credits (Capurso and Mason)

177b—DIRECTED TEACHING IN MUSIC. A continuation of Education 177a.

3 credits

193—DIRECTED TEACHING IN COMMERCIAL SUBJECTS. This course will include practice in junior business training; in shorthand; in typewriting and in such other commercial subjects as are commonly taught on the secondary level.

Prerequisites: Education 35, 122, 104, 158a, b, and 18 hours in Commerce. 6 credits (Betz)

214—THE SECONDARY SCHOOL. This course is designed to acquaint the prospective principal or superintendent with the nature and function of the secondary school. This is one of the basic courses in the field of administration and should be taken at or near the beginning of the student's graduate program.

3 credits (Ligon)

224a-b-c—ORGANIZATION AND SUPERVISION OF STUDENT TEACHING. This course has been planned for students preparing to do critic teaching in the fields of elementary and secondary education. Education 224a is a general course that will include the basic principles underlying the entire program. Education 224b will have to do with specific problems for critic teachers on the secondary level while Education 224c will deal with problems on the elementary level.

3 credits (Williams and Duncan)

241—PROBLEMS IN TEACHING THE SOCIAL STUDIES. The purpose of this course is to acquaint the teacher with the most approved methods of teaching the social studies. Source materials dealing with the problems of teaching, such as research findings, yearbooks, and periodicals will be investigated and current practices in the best high schools of the country will be stressed.

3 credits (Peck)

242—PROBLEMS IN TEACHING ENGLISH. The purpose of this course is to acquaint the teacher with the most approved methods of teaching English. Source materials dealing with the problems of teaching, such as research findings, yearbooks, and periodicals will be investigated and current practices in the best high schools of the country will be stressed.

3 credits (Anderson)

243—PROBLEMS IN TEACHING MATHEMATICS. The purpose of this course is to acquaint the teacher with the most approved methods of teaching mathematics. Source materials dealing with the problems of teaching, such as research findings, yearbooks, and periodicals will be investigated and current practices in the best high schools of the country will be stressed.

3 credits (Keffner)

244—PROBLEMS IN TEACHING PHYSICS. The purpose of this course is to take the prospective teacher over the whole field of high school physics. A series of demonstration lectures will be given supplying inspirational material. Selected experiments will be used as models for laboratory exercises. In conferences the following will be considered: Equipment and operation of the laboratory, source materials and tests, problems actually encountered by teachers in their work, etc. An outline for a workable course in high school physics will be required.

3 credits (Koppius)

247—PROBLEMS IN TEACHING LATIN. The purpose of this course is to acquaint the teacher with the most recent trends in the content and methods of Latin instruction in the high school. Source materials dealing with classroom problems of teaching Latin, such as research findings, periodicals and yearbooks will be investigated and current practices in the best high schools will be stressed.

3 credits (West)

249—EXTRA CURRICULAR ACTIVITIES. Underlying principles, faculty activities, home room activities, student council, clubs, athletics, publications, dramatics, honor societies, commencements.

Prerequisite: 12 hours Education.

3 credits (Ligon)

307a-b—RESEARCH PROBLEMS IN SECONDARY EDUCATION. This course is designed for students who want to work on special problems.

Prerequisite: Master's degree or equivalent. 3 credits (Ligon)

VOCATIONAL EDUCATION

211—THE ADMINISTRATION OF VOCATIONAL EDUCATION. A course designed for superintendents and principals of high schools. The purpose of the course is to train for administering and supervising vocational education. Topics emphasized include aims and purposes of vocational education, relationship of vocational to other education, financing vocational education, and relationship of local to state administration.

3 credits (Hammonds or Woods)

282—SPECIAL PROBLEMS IN VOCATIONAL EDUCATION. An independent work course for students interested in vocational education. Provision is made for the student to make individual investigations and reports on special problems.

3 credits (Woods)

PHYSICAL EDUCATION

The Physical Education Department offers graduate work toward the degree of Master of Arts or the degree of Master of Arts or Master of Science in Education. Requirements for the degree of Master of Arts with a major in physical education are stated on pages seven and eight. Requirements for the degree of Master of Arts or Master of Science in Education with a major in physical education are stated on page eight.

112—PROGRAMS AND MATERIALS OF PHYSICAL EDUCATION FOR GIRLS AND WOMEN. A consideration of the application and interpretation of physical education activities for girls and women. A consideration of selection of materials, organization of activities, and methods of teaching as applicable to women's physical education program. Three hours recitation.

3 credits

115—HISTORY AND SURVEY OF THE DANCE. A study of the history and development of the various dance forms, including ballet dances, free dances, folk dances, national dances, eastern dances, American Indian dances, and a study of modern tendencies, and relation of dancing to physical education. Three hours recitation.

3 credits

120—PHYSICAL DIAGNOSIS AND MEDICAL GYMNASTICS. Theory and practice in physical and health examinations with special emphasis on the detection of physical abnormalities; physical efficiency tests and measurements. Therapeutic exercises and their application to the prevention or arrest, the cure or correction of disturbances amenable to physio-therapeutic measures. Theory and practice of after-treatment in joint injuries, sprains and fractures.

3 credits; 1st semester and summer school (Potter)

124—HISTORY AND PHILOSOPHY OF PHYSICAL EDUCATION. History of Physical Education from the ancient Greeks and Romans,

through the Middle Ages and the Modern Era. The philosophy of the German, Swedish and French systems is outlined. Lectures and recitations on present day athletics and physical training in the United States and foreign countries. Two hours recitation a week.

2 credits; 2nd semester and summer school (Hackensmith)

125—ADMINISTRATION AND ORGANIZATION OF MUNICIPAL AND COMMUNITY RECREATION. A general consideration of the principles and procedures involved in organization methods and administrative policies for supervised children's, youths' and adults' recreation. Visitation and field trips to local municipalities and communities to study and discuss conditions as they pertain to organized recreational projects.

Prerequisite: Physical Education 29, 3 credits; 2nd semester or sufficient experience in and summer school organized recreational work. (Montgomery)

128—PRINCIPLES AND METHODS OF PHYSICAL EDUCATION. Lectures, discussions and preparation of papers covering the objectives of physical education; the educational, health and recreational significances; the content of the school program; types of activities for grade school, high school, and college.

3 credits; 1st semester and summer school (Potter)

131—ADVANCED BASKETBALL. Lectures and recitations on theory and practice of team play in basketball. Special emphasis is placed on systems of offense and defense as used by the leading coaches throughout the country. Two hours per week.

2 credits; 2nd semester and summer school (Rupp)

142—ADVANCED FOOTBALL. Lectures and recitations on the theory of football. Special stress is placed on generalship, signal systems, scouting and conditioning of players. Football is studied from the coach's viewpoint. Two hours a week.

2 credits; 1st semester and summer school (Kirwan)

148—ORGANIZATION AND ADMINISTRATION OF ATHLETICS. Special emphasis on equipment, care of the gymnasium plant, executive and administrative duties of an athletic director, establishment and enforcement of eligibility rules, making of schedules, selecting a coach, sportsmanship and publicity are studied. Three hours recitation and lecture a week.

3 credits; 2nd semester and summer school (Shively)

150—ORGANIZATION AND SUPERVISION OF INTRAMURAL ATHLETICS. The course will make a critical analysis of the outstanding intramural programs fostered throughout the United States. The relationship of intramural athletics to the school curriculum, physical education and interscholastic program will be studied. Problems of policy and administration of programs on the elementary, secondary, and college levels will be considered.

2 credits (Hackensmith)

201—RESEARCH IN PHYSICAL EDUCATION. Theory and practice in research and statistical procedures as applied to the field of problems of research pertaining to athletics, recreation, intramural and other phases of Physical Education. Lectures and study on the technique and procedure of research. Special problems and the preparation of papers dealing with studies and surveys of Physical Education. Five hours recitation a week.

5 credits; 2nd semester and summer school (Potter)

190—TECHNIQUE IN OFFICIATING ATHLETIC CONTESTS. Methods, procedures and technique in officiating football, basketball, baseball, track and field events and minor sports activities. Recitations and lectures, three hours a week.

3 credits (Shively)

200—GRADUATE SEMINAR IN PHYSICAL EDUCATION. Graduate students majoring in physical education who are engaged in writing a thesis should register for this course. Recitations, two hours a week.

2 credits (Hackensmith)

202—PROBLEMS COURSE IN CONTEMPORARY MOVEMENTS IN PHYSICAL EDUCATION. A detailed study and analysis of various foreign systems and procedures in physical education and athletic activities, and present athletic and physical education trends in the United States. Recitations and lectures, three hours a week.

3 credits (Hackensmith)

203—CURRENT STUDIES IN THE ADMINISTRATION OF PHYSICAL EDUCATION. For administrative officers, directors of physical education, and leisure time activities. A study of representative programs of physical education and standards for evaluating programs. Lecture and recitation, two hours a week.

2 credits (Potter)

204—CURRENT STUDIES IN THE ADMINISTRATION OF ATHLETICS. For athletic directors, supervisors, and administrative procedures for colleges, public school systems and municipal athletic leagues. Lecture and recitation, two hours a week.

2 credits (Potter)

VII. ENGINEERING

Prerequisites for graduate work: Students desiring to take any of the following courses should have the prerequisites indicated in each case. Courses numbered 200 and above are offered to graduates and to such practicing engineers as may be qualified to pursue them. A thorough working knowledge of chemistry, physics and mathematics is necessary. For credit toward an advanced degree, a candidate must hold a baccalaureate degree in the division of engineering in which he is registered.

ENGINEERING GENERAL

ENGINEERING ADMINISTRATION

100a—ENGINEERING VALUATIONS AND APPRAISALS. A study of the methods, procedures and principles involved in engineering analyses as applied to valuation and appraisal; specific problems and assignments to cover the various branches of engineering. Lectures and recitations three hours a week.

Prerequisite: Com. 1 or Pol. Sci. 15. 3 credits; 2nd semester (Emrath)

100b—ENGINEERING VALUATIONS AND APPRAISALS. A continuation of Engineering Administration 100a. Lectures and recitations, three hours a week.

3 credits; 1st semester (Emrath)

101—LAW FOR ENGINEERS. The nature of law and the organization of courts. Contracts, offer and acceptance, comparative bids. Parties, consideration, discharge of contracts. Engineering specifications and estimates. Typical engineering contracts and specifications. Lectures and recitations three hours a week.

Prerequisite: Eng. Adm. 100a. 3.0 credits; 1st semester

APPLIED MECHANICS

100—STRENGTH OF MATERIALS. A study of the physical properties of materials used in engineering machines and structures; the analysis of stress and strain due to bending, torsion, etc., in simple and continuous beams, columns, thin cylinders, springs, etc. Some attention is given to reinforced concrete. Lectures and recitations, four hours a week.

Prerequisite: Applied Mech. 1. 4 credits; both semesters, summer school (Hawkins, Walton)

101—ANALYTICAL MECHANICS. A continuation of Applied Mechanics 1, including the solution of engineering problems by means of differential equations. Lectures and recitations, four hours a week.

Prerequisites: Applied Mech. 1 and 100. 4 credits; both semesters (Hawkins, Walton)

102—STRENGTH OF MATERIALS. A continuation of Applied Mech. 100. Especial attention is given to curved bars, arches, thick cylinders and plates. Lectures and recitations, three hours a week.
Prerequisite: Applied Mech. 101. 3 credits; both semesters
(Hawkins, Farris)

103—ADVANCED APPLIED MECHANICS. This includes the inertia of moving parts, harmonic analysis, cams, free and forced vibrations and critical speeds. Lectures and recitations, three hours a week.
Prerequisite: Applied Mech. 102. 3 credits; both semesters
(Hawkins, Meyer)

ENGINEERING DRAWING

115—PHOTOGRAPHY. Fundamental principles of photography. Lectures on the optics and chemistry of photography together with practical demonstrations. Negative making, printing, etc. Lecture, one hour; recitation, one hour; laboratory, two hours a week.
3 credits; 2nd semester (Nollau)

CIVIL ENGINEERING

102—REINFORCED CONCRETE. A study of concrete mixtures. Theory and design of beams, slabs, columns, bridges and buildings.
Prerequisite: Ap. Mech. 100. 3 credits; 1st semester (Terrell)

104—REINFORCED CONCRETE DESIGN. Design of columns, beams, buildings, bridges, retaining walls, dams and arches. Special problems assigned to each student. Drawing room, two hours a week.
Prerequisite: E. M. 13. 0.7 credit; 1st semester (Terrell)
Concurrent: C. E. 102.

105—MASONRY STRUCTURES. Theory and design of retaining walls, dams, arches, plane and reinforced structures, rigid frames. Lectures and recitation, three hours; drawing room, two hours a week.
Prerequisite: Civ. Eng. 171a. 3.7 credits; 2nd semester
(Terrell)

106—FOUNDATIONS AND TUNNELING. A study of foundation material and its relation to the structure. Principles of tunneling as related to transportation and structures. Recitation, two hours a week.
Prerequisite: Appl. Mech. 100. 2 credits; 2nd semester
(Graham, Terrell)

107—SOIL MECHANICS. A study of soil and its utilization in foundations for structures and as subgrade for highways. Stabilization and improvement of bearing values. Recitation, two hours a week.
Prerequisite: Appl. Mech. 100. 2 credits; 2nd semester
(Shaver)

111—CONTRACTS AND SPECIFICATIONS. Legal forms and provisions of an engineering contract and details for specification writing.

1 credit; 2nd semester (Carrel and Farris)

113—GEODESY, PRECISE SURVEYING AND LEVELING. Method of making and adjusting observations in triangulation systems, and precise traverses. Observation and calculations for determining time, azimuth, latitude and longitude. Class work, two hours a week; field work, three hours a week.

Prerequisites: Math. 11, 12; 3 credits; 1st semester

C. E. 13.

(Terrell)

120—HYDRAULICS. Principles of hydraulics and hydrodynamic pressure. Flow of water through orifices, nozzles, pipes and open channels, over weirs, against stationary and moving vanes. Loss from friction and other sources. Lectures and recitation, two hours a week.

Prerequisite: Phys. 2a.

2 credits; both semesters

Prerequisite or Concurrent:

(Cheek)

Math. 20b.

122—WATER POWER ENGINEERING. Investigations, design and operation of water power projects.

Prerequisite: C. E. 120.

2 credits; 2nd semester (Carrel)

123—HYDRAULICS LABORATORY. Experimental investigation of flow of water in pipes, channels and over weirs; measure of friction and hydrostatic pressure; hydraulic machinery. Laboratory, three hours a week.

Prerequisite or Concurrent:

1.5 credits; 1st semester

C. E. 120.

(Cheek)

170—ELEMENTS OF STRUCTURAL DESIGN. Drafting room practice, problems in the design of timber, steel and masonry structures. Lectures, one hour; drafting room, six hours a week.

Prerequisite or Concurrent:

3 credits; both semesters

C. E. 171a.

(Carrell, Cheek)

171a—THEORY OF STRUCTURES. Laws of statics, wind, impact, live and dead load, reactions, shear moments and influence lines. Methods of design, including beams, girders, columns and various types of trusses. Lectures and recitations, three hours a week.

Prerequisite or Concurrent:

3 credits; both semesters

Applied Mech. 100.

(Carrel)

171b—THEORY OF STRUCTURES. Continuation of Civ. Eng. 171a. Lectures and recitations two hours a week.

Prerequisite: Civ. Eng. 171a. 2 credits; 2nd semester (Carrel)

173a—STEEL STRUCTURES. Design and detail of steel buildings and highway bridges. Lecture, one hour; drawing room, six hours a week.

Prerequisite: C. E. 171a.

3 credits; 2nd semester (Carrel)

173b—STEEL STRUCTURES. Design and detail of steel railway bridges. Drawing room, four hours a week.

Prerequisite: C. E. 173a. 1.3 credits; 1st semester (Carrel)

181a—INDEPENDENT PROBLEMS. A complete solution with the necessary details, plans and specifications of a problem, selected by the student with the approval of the instructor, in one of the following fields:

(a) Reinforced concrete design, (b) Concrete research, (c) Structural steel, (d) Hydraulics, (e) Sanitary engineering, (f) Highway and railway engineering, (g) Geodetic surveying.

Conference, laboratory or drawing room, three hours a week.

Prerequisite: Student must show 1 credit; 1st semester
that he is qualified to undertake (Terrell and others)
the proposed problem.

181b—INDEPENDENT PROBLEMS. Continuation of 181a. Seven hours a week conference, laboratory or drawing room.

Prerequisite: C. E. 181a. 3 credits; 2nd semester
(Terrell and others)

202a—CONSTRUCTION. Advanced work in plain and reinforced concrete, theory, design and experimental work. Class work, three hours; laboratory, nine hours a week.

6 credits; 1st semester (Terrell)

202b—CONSTRUCTION. Continuation of 202a.

6 credits; 2nd semester (Terrell)

232a—HIGHWAY ENGINEERING. Advanced course designed for graduate civil engineers who wish to enter the field of highway engineering. Road laws, organization of highway departments, traffic, cost, contracts and specifications, laboratory investigations on all kinds of surfacing materials. Structures, their design and maintenance. Class work, three hours; laboratory, nine hours a week.

6 credits; 1st semester (Chambers)

232b—HIGHWAY ENGINEERING. Continuation of 232a.

6 credits; 2nd semester (Chambers)

242a—RAILROAD ENGINEERING. Advanced course in location, construction, maintenance, economical selection of lines, grade reduction, cost of operation, valuation, structures and their maintenance. Class work, three hours; laboratory, nine hours a week.

6 credits; 1st semester (Shaver)

242b—RAILROAD ENGINEERING. Continuation of 242a.

6 credits; 2nd semester (Shaver)

262a—GEODETIC SURVEYING. Advanced course in geodetic calculations, development and use of formulas used by the United States Coast and Geodetic Survey. Modern methods of field practice. Class work, three hours; laboratory, nine hours a week.

6 credits; 1st semester (Terrell)

262b—GEODETIC SURVEYING. Continuation of 262a.

6 credits; 2nd semester (Terrell)

272a—STRUCTURAL ENGINEERING. Advanced course in theory of structures, mill buildings, railroad and highway bridges. The use of influence diagrams and detail drawings. Class work, three hours; laboratory, nine hours a week.

6 credits; 1st semester (Carrel)

272b—STRUCTURAL ENGINEERING. Continuation of 272a.

6 credits; 2nd semester (Carrel)

SANITARY ENGINEERING

151—WATER SUPPLY AND WATER WORKS. Sources of supply: rainfall, surface water, rivers, lakes and ground water. Theory of filtration, purification, equipment and distribution. Problems in design and construction.

Prerequisite: C. E. 120.

2 credits; 2nd semester

(Terrell and Cheek)

152—SEWERS AND SEWAGE DISPOSAL. Sanitary and storm sewer systems; theory of design; method of disposal.

Prerequisite: E. M. 101.

2 credits; 2nd semester

(Terrell and Cheek)

153—DESIGN OF WATER WORKS AND SEWERS. Design of water supply system, storm and sanitary sewers and disposal plants. Specifications and estimates of cost. Drawing room, four hours a week.

Prerequisites or concurrent:

1.3 credits; 2nd semester

S. E. 151, 152.

(Terrell and Cheek)

156—WATER AND SEWER PLANT OPERATIONS. Standard methods of control for producing best results in the treatment of water and sewage. Practice with miniature plants. Laboratory, two hours a week.

Prerequisite or concurrent:

1 credit; 2nd semester

S. E. 151, 152.

(Cheek)

157—SANITARY ENGINEERING FOR HEALTH OFFICERS. General principles of sanitary engineering including municipal and rural sanitation, water supply, collection of waste, sewers and sewage disposal, insect control, milk sanitation, principals of heating, lighting and ventilation. Eight hours a week for eight weeks. Lectures, recitations, field trips.

2 credits; summer school (Cheek)

158—SANITARY ENGINEERING DESIGN. For students majoring in Sanitary Engineering. Complete design and layout of a water plant, distribution system, storm and sanitary sewer and sewage disposal plant. Drawing room, eight hours a week.

Prerequisite or Concurrent:

2.7 credits; 2nd semester

San. Eng. 151, 152.

(Cheek)

182—SANITATION. Presented from an engineering view point. Municipal and rural sanitation, treatment and protection of water supplies, disposal of refuse and sewage, control of insects, food supply, plumbing and ventilation. Recitation, three hours a week.

Prerequisite: Bact. 57. 3 credits; 1st semester (Cheek)

183—STREAM POLLUTION. Survey of sources of pollution including sewage and industrial waste, prevention, sanitary laws, relation to public health. Recitation, three hours a week.

Prerequisite: Bact. 57. 3 credits; 2nd semester (Cheek)

252a—SANITARY ENGINEERING. Advanced course in sewer design, construction and maintenance. Design, maintenance and operation of sewage disposal plants. Water supply and water works design, construction and maintenance. (Courses in water analysis and bacteriology should be taken in connection with this course.) Class work, three hours; laboratory, nine hours a week.

6 credits; 1st semester (Cheek)

252b—SANITARY ENGINEERING. Continuation of 252a.

6 credits; 2nd semester (Cheek)

ELECTRICAL ENGINEERING

101—ELEMENTS OF ELECTRICAL ENGINEERING MACHINERY (For Civil, Metallurgical and Mining Engineers). A study in classroom and laboratory of the more common types of d. c. and a. c. electrical equipment and controls which are to be found in general use. Recitation, two hours a week; laboratory, three hours a week.

Prerequisite: Physics 2b. 3 credits; 1st semester (Bureau)

102—ELECTRICAL ENGINEERING MACHINERY (For Metallurgical and Mining Engineers). A study in the classroom of electric power applied to mining machinery and metallurgical processes.

Prerequisite: E. E. 101. 2 credits; 2nd semester (Bureau)

105—D. C. CIRCUITS AND MACHINERY (For Mechanical Engineers and Industrial Chemists). A study in classroom and laboratory of the fundamental laws of electrical and magnetic circuits with special attention to direct current equipment such as generators, motors, batteries and control apparatus. Recitation, three hours a week; laboratory, three hours a week.

Prerequisite: Physics 2b. 4 credits; both semesters, summer school (Barnett, Doll)

106—ALTERNATING CURRENTS (For Mechanical Engineers and Industrial Chemists). The fundamental theory of alternating current circuits and apparatus. Includes study of single phase and polyphase generators, motors and transformers, converters, etc. Recitation, three hours; laboratory, three hours a week.

Prerequisite: E. E. 105; 4 credits; both semesters, summer school (Barnett, Doll)
Math. 20a.

107—ELECTRICAL CONTROL. A study of the field of electrical engineering which is concerned with the control of electric motive equipment. It involves a study of the individual types of control equipment as well as the various circuits with which they are tied together into a unit of automatic functioning equipment. Recitation, two hours; laboratory, three hours a week.

Prerequisite or Concurrent: 3 credits; 2nd semester
E. E. 106, 116 or 101. (Bureau)

108—ENGINEERING ELECTRONICS. A study of the application of thermionic and light sensitive tubes to industry in non-communication uses such as controlling processes, safe-guarding life and property, etc. Included will be light sensitive tubes in illumination control, smoke density recorders, etc., and power rectifiers of various types. The laboratory work will consist of designing, building and studying control circuits. Recitation, two hours; laboratory, three hours a week.

Prerequisite: Physics 2b, 114. 3 credits; 1st semester (Doll)

109—ELECTRICAL POWER EQUIPMENT. A general study of the operation of the more common types of electrical power equipment. Attention is given to power resources, prime movers, generating equipment, switch gear, transformers, meters, reactors, relays, lightning arresters and distribution systems. Recitation, four hours a week.

Prerequisite: E. E. 106 or 116. 4 credits; 1st semester,
summer school (Freeman)

110—ELECTRICAL LABORATORY (For Electrical Engineers). An experimental study of electrical machines. Two three-hour laboratory periods a week.

Prerequisite or 2 credits; 2nd semester (Barnett)
Concurrent: Elec. Eng. 116.

111a—ADVANCED ELECTRICAL LABORATORY. Advanced study of electrical machinery and equipment with special reference to alternating current apparatus. Laboratory, six hours a week.

Prerequisite: E. E. 106 or 116. 2 credits; 1st semester (Bureau)

111b—ADVANCED ELECTRICAL LABORATORY. Continuation of E. E. 111a. Laboratory, three hours a week.

1 credit; 2nd semester (Bureau)

115—DIRECT CURRENT MACHINERY (For Electrical Engineers). The theoretical principles and operation of direct current machines, including generators, motors, lifting magnets, balances, etc. Recitations, three hours; supervised calculations and laboratory, three hours a week.

Prerequisites: Phys. 2b, 4 credits; both semesters
Elec. Eng. 21, Math. 20b. (Barnett, Doll)

116—ALTERNATING CURRENT CIRCUITS AND MACHINERY (For Electrical Engineers). A study of polyphase circuits and of the simpler forms of alternating current machines. Recitations, three hours; supervised calculations and laboratory, three hours a week.
Prerequisite: Elec. Eng. 115. 4 credits; 2nd semester,
 summer school (Barnett, Doll)

117—ALTERNATING CURRENT MACHINERY (For Electrical Engineers). The theory of alternating current machines and their applications in the generation, distribution and utilization of electrical power. Recitations, three hours; supervised calculations and laboratory, three hours a week.
Prerequisite: Elec. Eng. 116. 4 credits; 1st semester
 (Barnett, Doll)

123—ELECTRICAL EQUIPMENT PROBLEMS. A problem course in miscellaneous design and application of electrical equipment. Economic comparisons as well as engineering considerations are factors studied in making selections in equipment. Six hours a week.
Prerequisite: E. E. 106 or 116. 2 credits; both semesters,
 summer school (Bureau)

124—ELECTRICAL DESIGN. A study of design problems culminating in the design calculation for a generator or motor and the design of a distribution transformer. Nine hours a week.
Prerequisite or concurrent: 3 credits; both semesters,
E. E. 106 or 116. summer school (Bureau)

131—COMMUNICATION ENGINEERING (Elective for Electrical Engineers). A general survey of the field of electrical communication from the first Bell telephone to the modern dial telephone and the wireless phone; from the first Morse telegraph to the most modern form of automatic recording telegraph and the commercial wireless of today. Recitations, three hours; supervised problem work and laboratory, three hours a week.
Prerequisite: Elec. Eng. 106 or 116. 4 credits; 2nd semester
 (Doll)

136—ILLUMINATION ENGINEERING. Includes a study of light sources and photometry; fundamental principles of illumination as applied to home, public building, factory and commercial lighting; outdoor lighting, including streets and highways. Recitations, three hours; supervised problem work and laboratory, three hours a week.
Prerequisite: Phys. 2b. 4 credits; 2nd semester (Freeman)

137—ELECTRIC POWER TRANSMISSION AND DISTRIBUTION (Elective for Electrical Engineers). A study of the materials and equipment used and the problems involved in the design, building and operation of transmission lines and distribution systems. Recitations, three hours a week.
Prerequisite: Elec. Eng. 106 or 116. 3 credits; 1st semester
 (Freeman)

141—ANALYTICAL ELECTRICAL ENGINEERING. A study of the complex notation and its use in the vector analysis of electrical machinery and circuit conditions. Recitations, three hours a week.
Prerequisite: E. E. 106 3 credits; 1st semester (Bureau)
or 116 or Math. 105a.

151a—SEMINAR (For Electrical Engineers). Round table discussion of modern trends and practices in electrical engineering. Basis of discussion is current literature on electrical subjects. Two hours a week.
Prerequisite: Senior classification. 0.5 credit; 1st semester
(Doll)

151b—SEMINAR (For Electrical Engineers). Continuation of Elec. Eng. 151a. Two hours a week.
0.5 credit; 2nd semester (Doll)

152a—INDEPENDENT PROBLEMS. A problem, approved by the Head of the Department, forms the background for the student's original study and research. Only students whose previous record warrants it, will be allowed to take this work. Six hours a week.
Prerequisite: Senior classification.

2 credits; both semesters (Freeman and Others)

152b—INDEPENDENT PROBLEMS. Continuation of Elec. Eng. 152a. Nine hours a week.
Prerequisite: Senior classification. 3 credits; both semesters
(Freeman and Others)

152c—INDEPENDENT PROBLEMS. Continuation of Elec. Eng. 152b. Twelve hours a week.
Prerequisite: Senior classification. 4 credits; both semesters
(Freeman and Others)

205—ADVANCED INDUCTION MOTOR THEORY. A study of the theory underlying the characteristics of single phase and polyphase induction motors. Recitation, three hours; laboratory, three hours a week.

4 credits; 1st semester (Bureau)

206—ELECTRIC POWER TRANSMISSION. The theory underlying calculation and operation of long distance transmission circuits. Special attention to relay control. Recitation, three hours; laboratory, three hours a week.

4 credits; 1st semester (Barnett)

207—ELECTRIC POWER DISTRIBUTION. A study of theory underlying operation and control of various types of distribution network circuits. Recitation, three hours; laboratory, three hours a week.
4 credits; 2nd semester (Barnett)

208—ELECTRIC TRACTION. An advanced study of electric power application to railways, cranes, elevators, etc. Recitation, three hours; drawing room, three hours a week.

4 credits; 2nd semester (Bureau)

209—TELEPHONE ENGINEERING. An advanced study of the theory and operation of modern telephone exchanges. Layouts and designs are made to meet different assumed conditions. Recitation, three hours; laboratory and design, three hours a week.

3 credits; 1st semester (Freeman)

210—SYMMETRICAL COMPONENTS. A study of the symmetrical component method of analyzing unbalanced conditions on transmission lines and its use in solving relay applications. Recitation, three hours; laboratory and design, three hours a week.

4 credits; 2nd semester (Bureau)

MECHANICAL ENGINEERING

100a—MACHINE DESIGN (For Mechanical Engineers). Design of machine and structural elements. Lecture, two hours; drawing room, five hours a week.

Prerequisites: Eng. Draw. 18,

Applied Mech. 1.

Prerequisite or Concurrent: 2.3 credits; both semesters,
Applied Mech. 100. summer school (Jett, Meyer)

100b—MACHINE DESIGN (For Mechanical Engineers). Continuation of Mech. Eng. 100a. Individual work on the design and construction of complete machines or structures. Lecture, one hour; drawing room, nine hours a week.

Prerequisite: Mech. Eng. 100a. 3.3 credits; both semesters,
summer school (Jett, Meyer)

101—MECHANICAL ENGINEERING DESIGN. Individual work in the selection of equipment and in the laying out and specifying of power plant, heating, ventilating, air conditioning, plumbing, electric, industrial and elevator equipment for buildings. Drawing room, nine hours a week.

Prerequisites: Mech. Eng. 104, 3 credits; both semesters
Applied Mech. 100. (West, May)

Prerequisite or Concurrent:

M. E. 105, 106b, 109.

103—ELEMENTS OF HEAT-POWER ENGINEERING. Brief general course in heat-power engineering, including elementary principles of thermodynamics and power plant equipment. Intended for civil and mining engineers. Recitation, two hours a week.

Prerequisite: Physics 2a. 2 credits; 1st semester (May)

104—ENGINEERING THERMODYNAMICS. Covering the fundamental principles of thermodynamics, Carnot cycles, entropy and enthalpy. A study of the thermodynamic equations for gases and vapors, steam power plant cycles, reciprocating engines and turbines. Recitations four hours a week.

Prerequisites: Phys. 2a, Math. 20a. 4 credits, both semesters
Prerequisite or Concurrent: Math. 20b. (Walton)

105—STEAM POWER PLANT EQUIPMENT. Study of the characteristics and use of steam power plant equipment, including steam generators, fuel handling and burning equipment, ash handling draft producers, dust collectors, smoke abatement, prime movers, generators, air preheaters, economizers, feed water heating and treatment apparatus, pumps, continuous blow down and combustion control apparatus. Recitations two hours a week.

Prerequisite: Mech. Eng. 104. 2 credits; both semesters (West)

106a—HEATING, VENTILATING AND AIR CONDITIONING. General course open to all engineers. Elementary heating and ventilating calculations and a study of the characteristics of various types of heating and ventilating equipment. Recitations three hours a week.

Prerequisite: Mech. Eng. 104 or 3 credits; 2nd semester (May)

Mech. Eng. 103.

106b—HEATING, VENTILATING AND AIR CONDITIONING. A continuation of Mech. Eng. 106a. Special emphasis on the physics and thermodynamics of air conditioning and the design, selection, laying out and specifying of air conditioning equipment. Recitations two hours a week.

Prerequisite: Mech. Eng. 106a. 2 credits; 1st semester (May)

107—FLOW OF GASES. Derivation and use of formulas for the flow of steam and air through pipes and metering devices, using the thermodynamical method of analysis. Recitations two hours a week, one-half of semester.

Prerequisites: Mech. Eng. 104 or 1 credit; 1st semester

Mech. Eng. 103, Civ. Eng. 20. (West)

108—INTERNAL COMBUSTION ENGINES. A study of internal combustion engine cycles and the characteristics and performance of actual engines, valve gears and materials of construction. Recitations three hours a week.

Prerequisite: M. E. 104. 3 credits; both semesters (Meyer)

109—REFRIGERATION. A study of the thermodynamics of refrigeration cycles, and the characteristics of refrigeration equipment. Recitation three hours a week.

Prerequisite: M. E. 104. 3 credits; both semesters (May)

110—HEATING AND VENTILATING DESIGN. Brief course for architectural engineers, covering the selection and layout of heating and ventilating equipment. Drawing room four hours a week.

Prerequisite or concurrent: 1.3 credits; 2nd semester (May)

M. E. 116.

111—ENGINEERING REPORTS. A study of the purpose, form and use of engineering reports, together with the construction of charts and tables for the presentation of data therein and the drafting

of the salient conclusions therefrom. Also the study of financial reports, contract forms and specifications. Recitations two hours a week.

Prerequisite: M. E. 112. 2 credits; both semesters (West)

112—MECHANICAL LABORATORY. Practice in the operation, use, calibration and care of mechanical and industrial test and research instruments and apparatus, followed by a study of the methods used for the determination of certain fundamental coefficients and constants; also a study of the records and results from operating and test instruments in actual commercial use. Lecture one hour; laboratory three hours a week.

Concurrent: Mech. Eng. 104. 2 credits; both semesters (Walton)

113—MECHANICAL LABORATORY. Performance tests on heating, ventilating and power plant equipment. Lecture one hour; laboratory two hours a week.

Prerequisite or concurrent: 2 credits; 1st semester
M. E. 105, 106a. (West)

116—ELEMENTARY HEATING, VENTILATING AND AIR CONDITIONING. A course involving elementary heating calculations and descriptions of various types of heating and ventilating equipment. Latter part of semester devoted to a discussion of the basic principles of air conditioning. Recitations three hours a week.

Prerequisites: Phys. 1a or 10, 3 credits; both semesters
Junior classification. (May)

120—INDEPENDENT PROBLEMS. This comprises the complete design and possibly the construction of a machine or an apparatus or the complete design and specifications for a power plant, heating, ventilating and air conditioning system or industrial shop, including the management and direction of underclass assistants who will be then assigned such work as required; together with the estimating of the costs and time required to perform the work. Lectures and laboratory fourteen hours a week.

Prerequisite: Senior classification. 5 credits; both semesters
(West and others)

121—MACHINE DESIGN. (For Electrical Engineers.) Similar to Mech. Eng. 100a with special attention to the mechanical features of electrical machines. Lecture two hours; drafting room four hours a week.

Prerequisite: Eng. Draw. 18. 2 credits; both semesters,
Prerequisite or Concurrent: summer school (Jett)
Applied Mech. 100.

122a—MECHANICAL ENGINEERING SEMINAR. Studies of current engineering literature and problems; presentation of papers and discussions. All presentation to be electrically recorded and repro-

duced and at least one record of each student to be placed on file. Two hours a week.

Prerequisite: Senior classification. 1 credit; 1st semester
(West, May and others)

122b—MECHANICAL ENGINEERING SEMINAR. Continuation of Mech. Eng. 122a. Two hours a week.

Prerequisite: Senior classification. 1 credit; 2nd semester
(West, May and others)

201a—AUTOMOTIVE ENGINEERING. An advanced course in the essentials of motor vehicle design, construction and operation. Drafting room, laboratory and lectures by appointment.

6 credits; both semesters (Meyer)

201b—AUTOMOTIVE ENGINEERING. Continuation of 201a.

6 credits; both semesters (Meyer)

202a—POWER PLANT ENGINEERING. Advanced work in the design, selection, layout and operation of heat-power plant equipment.

6 credits; 1st semester (West)

202b—POWER PLANT ENGINEERING. Continuation of 202a.

6 credits; 2nd semester (West)

203a—HEATING, VENTILATING AND AIR CONDITIONING. Advanced work in the design, selection, layout and operation of heating, ventilating and air conditioning equipment.

6 credits; 1st semester (May)

203b—HEATING, VENTILATING AND AIR CONDITIONING. Continuation of 203a.

6 credits; 2nd semester (May)

204a—ADVANCED MACHINE DESIGN. The application of the principles of mechanics of materials, dynamics and kinematics to the design of complete machines. This involves a knowledge of shop practice and methods of construction.

6 credits; 1st semester (Jett, Meyer)

204b—ADVANCED MACHINE DESIGN. Continuation of 204a.

6 credits; 2nd semester (Jett, Meyer)

METALLURGICAL ENGINEERING

120—ASSAYING. This course comprises the determination of the constituents of ores and metallurgical products by means of fire methods, primary attention being given to the determination of the precious metals. Laboratory forty-four hours a week for two weeks.

Prerequisites: Chem. 8, Met. 27. 2.0 credits; summer
(Beebe)

121 FUEL AND METALLURGICAL LABORATORY. This course comprises the analytical determination of the constituents of ores and metallurgical products by both wet and dry methods as well as the determinative methods utilized in the analysis of coals and other fuels. Laboratory forty-four hours a week, for two weeks.

Prerequisites: Chem. 8, Met. 27. 2 credits; summer
(Beebe)

128—METALLURGY OF NON-FERROUS METALS. This course comprises a study of the principles and processes employed in the production and preparation for use of copper, lead, aluminum and other non-ferrous metals such as gold, silver, zinc, etc., and of their respective alloys. Lectures and recitations three hours a week.

Prerequisite: Met. 27. 3 credits; 1st semester (Crouse)

132—METALLURGICAL CALCULATIONS. This course comprises a study of the calculations involved in the practical application of the principles of general metallurgy, as well as those used in both ferrous and non-ferrous metallurgical practice. Recitations and problems, five hours a week.

Prerequisite: Chem. 8; 5 credits; 2nd semester
Met. 29 and 128. (Crouse)

140—THE SCIENCE OF METALS. This is a first course in physical metallurgy and involves a consideration of the correlation of the structure of metals and alloys to their physical properties together with the effects of mechanical work and heat. Lectures and recitations three hours a week

Prerequisites: Physics 2b; Chem. 8; 3 credits; 2nd semester
Met. 26 or 27. (Crouse, Tarnopol)

142—HEAT TREATMENT. This course comprises a study of the methods used and the principles involved in the heat treatment of metals and alloys. Lectures and recitations two hours a week; laboratory four hours a week.

Prerequisites: Met. 29, Met. 60. 3.3 credits; 2nd semester
(Crouse, Beebe, Tarnopol)

143—PHYSICS OF METALS. The study of the laws governing the formation of alloys. Subjects discussed are atomic structures of metals and alloys, atomic forces, superlattices, ferro-magnetism, perfect and imperfect crystals, corrosion, superconductivity, the physical properties of metals as a function of periodic and electrochemical position, diffusion, free energy, Hume-Rothery and other rules and the use of X-rays and electron diffraction. Lectures and recitations, three hours a week.

Prerequisite: Met. 140, Phys. 123. 3 credits; 2nd semester
(Tarnopol)

150—INDUSTRIAL MINERAL PREPARATION AND USES. This course comprises a study of the more common non-metallic substances utilized in industry such as carbon, lime, clay, nitrogen, etc. Lectures and recitations three hours a week.

Prerequisite: Met. 27. 3 credits; 2nd semester (Beebe)

164—ELEMENTS OF LOW TEMPERATURE CARBONIZATION. An elementary course in the study of the principles involved in the low temperature carbonization of coals and other carbonaceous materials, including hydrogenation. Lectures and recitation three hours a week, with assigned reference reading.

Prerequisites: Phys. 2a. 3.0 credits; 2nd semester (Crouse)
Chem. 8.

166a—EXTRACTIVE METALLURGY. Study of the principles and mechanisms applied to the practices of gravity concentration, flotation, and related processes, in the preparation of mine products for market, including discussion of the principles of plant design, with reference to reading planned to keep the student informed of current technological development. Recitations and lectures, three hours a week.

Prerequisite: Chem. 2b, Phys. 2a, 3 credits; 1st semester
Math. 20a, Met. 27. (Emrath)

166b—EXTRACTIVE METALLURGY. Continuation of Metallurgy 166a. Recitations and lectures three hours a week.

3 credits; 2nd semester (Emrath)

167—EXTRACTIVE METALLURGY PLANT PRACTICE. A summer course in the operation of plants studied in Metallurgy 166a, 166b. Laboratory forty-four hours a week for three weeks.

3 credits; Summer School

175a—SEMINAR. This course includes general round table discussions of various metallurgical principles and problems, the preparation and delivery of papers and reports on metallurgical subjects, extemporaneous speaking and the briefing of technical books and articles in the current literature. Four hours a week.

Prerequisite: Senior classification. 2 credits; 1st semester
(Crouse, Beebe, Tarnopol)

175b—SEMINAR. A continuation of Metallurgy 175a. Four hours a week.

Prerequisite: Senior classification. 2 credits; 2nd semester
(Crouse, Beebe, Tarnopol)

205—HEAT TREATMENT OF METALS AND ALLOYS. This is an advanced course in which the various factors involved in the heat treatment of metals and alloys are considered with special emphasis upon the particular metal or alloy on which the student wishes to specialize. Reference reading and laboratory work are emphasized. Lectures and recitations two hours a week; laboratory eight hours a week.

6 credits; both semesters (Crouse, Tarnopol)

207—TECHNOLOGY OF ALLOYS. This course comprises a study of the principles and practices used in the production of alloys of various kinds with special stress upon any particular group of alloys that the student may choose. Reference reading and laboratory work are emphasized. Lectures and recitations two hours a week; laboratory eight hours a week.

6 credits; both semesters (Crouse)

208—ADVANCED METALLOGRAPHY. This course comprises a detailed study of the structure of metals and alloys together with their preparation for study under the microscope. In addition instruction is given in the taking of microphotographs. Reference reading and laboratory work are emphasized. Lectures and recitations two hours a week; laboratory eight hours a week.

6 credits; both semesters (Crouse, Tarnopol)

209—ADVANCED ORE DRESSING. This course comprises a study of the technique of ore dressing, plant design and gives an opportunity for original research in concentration problems. Lectures and recitations two hours a week; laboratory eight hours a week.

6 credits; both semesters (Emrath)

210—TECHNOLOGY OF LOW TEMPERATURE CARBONIZATION. This course comprises a detailed study of the principles and practices employed in the low temperature carbonization of carbonaceous materials such as bituminous and cannel coals. Reference reading and laboratory work are emphasized. Lectures and recitations two hours a week; laboratory eight hours a week.

Prerequisite: Sufficient background in Physics, Chemistry and Metallurgy, this background to be determined by the Head of the Department after consultation with the student. 6 credits; both semesters (Crouse)

211—ELEMENTS OF OIL SHALE ENGINEERING. This course comprises an elementary study of the destructive distillation of oil shales for the production of oil, gas and by-products together with the history of the oil shale industry and the economic factors upon which the future development of the industry depends. Lectures and recitations two hours a week.

Prerequisite: A sufficient background of Physics, Chemistry and Geology. 2 credits; both semesters (Crouse)

212—OIL SHALE TECHNOLOGY. This course involves a detailed study of the principles employed and the methods used in the production of oil from shale. Reference reading and laboratory work are emphasized. It is desirable that the student have some knowledge of

physical and organic chemistry. Lectures and recitations two hours a week; laboratory eight hours a week.

Prerequisites: Sufficient background in Chemistry and Physics. 6 credits; both semesters (Crouse)

213—X-RAY METALLOGRAPHY. The atomic structure of metals and alloys will be determined. Laue, Debye, focusing, rotating crystal, Phragmen and Sacks type diffraction cameras will be studied; also stereographic and gnomonic projection, pole figures, fibre patterns, crystal structure and Cohen's analytical method of calculating lattice parameters. Radiographs will be made and interpreted. Lectures and recitations two hours, laboratory four hours a week.

Prerequisite: Met. 143. 4 credits; both semesters (Tarnopol)

230a-b-c-d—RESEARCH IN X-RAY METALLOGRAPHY. Research problems in X-Ray metallography either diffraction or radiographic.

Prerequisite or Concurrent: Met. 143, Met. 213. 6 credits; both semesters, summer school (Tarnopol)

MINING ENGINEERING

126a—DEVELOPMENT OF MINES. Includes study of the origin of mineral deposits in general, as they concern the engineering procedures involved in the location and exploration of mineral deposits and of the engineering processes involved in the development of prospects into mines. Recitations four hours a week; reference reading and assigned reports.

Prerequisite: Chem. 2b, Phys. 2a, Geol. 12 and Geol. 7. 4 credits; 2nd semester (Emrath)

126b—DEVELOPMENT OF MINES. Continuation of Mining 126a. Recitations two hours a week, with assigned reference reading and reports.

Prerequisite: Min. 126a. 2 credits; 1st semester (Emrath)

127a—MINING UNDERGROUND. Includes a study of methods of excavation and support, and underground working and development faces in all types of underground mining operations. Recitations and lectures three hours a week with assigned reference reading.

Prerequisite: Min. 126a. 3 credits; 1st semester (Emrath)

127b—MINING UNDERGROUND. Continuation of Mining 127a. Recitations and lectures two hours a week with assigned reference reading.

Prerequisite: Min. 126a. 2 credits; 2nd semester (Emrath)

128—MINING AT THE SURFACE. Study of the methods of working placer deposits, open-pit mines, and similar surfacial mining operations. Lectures and recitations three hours a week with assigned reference reading.

Prerequisite: Min. 126a. 3 credits; 2nd semester (Emrath)

129a—MINE VENTILATION AND DRAINAGE. Includes study of the principles applied to the conditioning of underground mine atmospheres, the drainage of underground mine workings and the problems encountered in the handling of emergencies, such as fires and floods in underground working. Recitations and lectures three hours a week.

Prerequisite: Min. 126a; preferably 3 credits; 1st semester

Concurrent Min. 127a.

(Emrath)

129b—MINE VENTILATION AND DRAINAGE. Continuation of Mining 129a. Recitations and assigned reference reading two hours a week.

Prerequisites: Min. 129a. 2 credits; 2nd semester (Emrath)

130a—MINE ADMINISTRATION. A study of the engineering aspects of mine administration and management, of the technology and mechanization studies of mining and market preparation processes, and practice in the fundamentals of mine plant design. Recitations and lectures with assigned reference reading two hours a week.

Prerequisite: Min. 126a, Min. 126b. 2 credits; 1st semester

(Emrath)

130b—MINE ADMINISTRATION. Continuation of Mining 130a. Lectures, assigned reference reading and problems in mine plant design two hours a week for one semester.

Prerequisite: Min. 130a. 2 credits; 2nd semester (Emrath)

160—MINE SURVEYING AND FIELD PRACTICE IN MINING ENGINEERING. This is a summer course and consists of problems in mine surveying and the practical application of mining principles in the field. The problems given may vary from year to year according to circumstances and the particular field of interest of the student. One summer course is required and more may be taken. Field work forty-four hours a week for four weeks.

Prerequisite: Junior classification. 3 credits; summer

(Emrath)

175a—SEMINAR. This course includes general round table discussions of various mining principles and problems, the preparation and delivery of papers and reports on mining subjects, extemporaneous speaking and the briefing of technical books and articles in the current literature. Four hours a week.

Prerequisite: Senior classification. 2 credits; 1st semester

(Crouse, Emrath)

175b—SEMINAR. A continuation of Mining 175a. Four hours a week.

Prerequisite: Senior classification. 2 credits; 2nd semester

(Crouse, Emrath)

203—MINE ORGANIZATION. This course comprises a detailed study of the structure and function of a mining enterprise from both the financial and the engineering standpoints. Lectures and recitations three hours a week.

3 credits; both semesters (Emrath)

206—EXPLOSIVE ENGINEERING. This course comprises a study of the principles involved in the use of explosives in large scale mining and quarrying practice. Lectures and recitations two hours a week.
2 credits; both semesters (Emrath)

207—ADVANCED PROSPECTING. This course comprises a detailed study of the principles involved in the geophysical investigation of the minerals of the earth's crust. Lectures and recitations two hours a week.
2 credits; both semesters (Emrath)

208—COAL DUST INVESTIGATION. This course is essentially research in the design and utilization of a laboratory scale gallery for the investigation of the explosive qualities of native bituminous coals. Laboratory twelve hours a week.
4 credits; both semesters (Emrath)

209—ADVANCED MINE ENGINEERING. This course comprises a detailed study of the procedure and methods used in collecting and recording data and engineering information involved in the systematic development and exploitation of a mining property. Lectures and recitations three hours a week; drawing and mapping eight hours a week.
7 credits; both semesters (Emrath)

PETROLEUM PRODUCTION ENGINEERING

101a—PETROLEUM LABORATORY. A study of the principles involved in the accumulation of petroleum in the reservoir rock materials, in the working of these principles in the establishment of flow, saturation, permeability, and porosity conditions as encountered in production from the reservoir rock materials. Lectures and recitations two hours a week, laboratory eight hours a week.
Prerequisite: Phys. 2b. 4.7 credits; 2nd semester (Emrath)
Concurrent: Civ. Eng. 120.

101b—PETROLEUM LABORATORY. Continuation of Petroleum Engineering 101a. Lectures and recitations two hours, laboratory eight hours a week. Reference reading and reports required.
Prerequisite: Pet. Eng. 101a. 4.7 credits; 1st semester (Emrath)

102a—OIL PROPERTY DEVELOPMENT. A study of the economic and technical circumstances that influence the choice of method of development of a petroleum property for production. Lectures and recitations two hours a week with assigned reference reading.
Prerequisite: Junior classification. 2.0 credits; 2nd semester

102b—OIL PROPERTY DEVELOPMENT. Continuation of Petroleum Engineering 102a. Lectures and recitations two hours a week with assigned reference reading and problems.
Prerequisite: Pet. Eng. 102a. 2.0 credits; 1st semester

103—PRODUCTION OF GAS AND OIL BY DRILLED WELLS. A study of the technical features of various drilling methods, or methods of preparation and equipment of wells for production, etc. Lectures and recitations three hours per week.

Prerequisite: Junior classification. 3.0 credits; 1st semester

104—FIELD STORAGE, PRELIMINARY REFINING AND TRANSPORTATION OF PETROLEUM. A study of the technical and economic principles applied in design, layout and construction of tanks, reservoirs, preliminary refining apparatus, pipe lines, etc., for the handling of production from petroleum properties. Lectures and recitations three hours a week with assigned reference reading.

3.0 credits; 2nd semester

105—DEEP BORE HOLE SURVEYS AND PROBLEMS. Lectures and recitations two hours a week.

Prerequisite: Junior classification. 2.0 credits; 2nd semester

106—OIL FIELD HYDROLOGY. A study of the technical principles involved in describing the effects of waters associated with oil and gas deposits in reservoir rocks. Lectures and recitations three hours a week.

Prerequisites: Pet. Eng. 101b, 3.0 credits; 2nd semester
Pet. Eng. 102b.

120—SEMINAR. This course includes general round table discussions of various petroleum principles and problems, the preparation and delivery of papers on petroleum subjects, extemporaneous speaking and the briefing of technical books and articles in the current literature. Four hours a week.

Prerequisite: Senior classification. 2 credits; 2nd semester
(Emrath)

VIII. FINE ARTS

ART

The Department of Art requires of candidates for the Master's degree preliminary work in art equivalent to that required of art majors at the University of Kentucky. In general this means that applicants should have completed six semesters of study in processes of art (drawing, painting, or design) and four semesters of study in the history of art, and that they have a reading knowledge of French or German. Graduate work for the Master's degree may emphasize either technical study of painting or design or non-technical study based on history and criticism of art.

112a—COMPOSITION. A study of pictorial organization for advanced students. Six studio hours a week.

Prerequisite: 12 credits in Drawing and Painting. 2 credits; both semesters (Fisk)

112b—COMPOSITION. Continuation of 112a. One major problem will be carried out in this course. Six studio hours a week.

2 credits; both semesters (Fisk)

115a, b, c, d—INDEPENDENT WORK. Individual work in painting, illustration, applied design or historical research. Open only to advanced students upon approval of Department Head.

3 credits; both semesters (Rannells)

116a—ETCHING. This is a course in the process of etching, open only to advanced students whose work merits reproduction. Eight studio hours and weekly problems.

Prerequisites: 12 credits in Drawing and Painting, and approval of instructor. 4 credits; both semesters (Fisk)

116b—ETCHING. Continuation of 116a. Eight studio hours and weekly problems.

4 credits; both semesters (Fisk)

137—HISTORY OF RENAISSANCE ART IN ITALY. Lectures and reports.

3 credits; 2nd semester (Rannells)

138—HISTORY OF RENAISSANCE ART IN THE NORTH. Flemish, German, and French Art. Lectures and reports.

3 credits; 1st semester (Rannells)

139a—HISTORY OF MODERN ART. Lectures, conferences and reports.

3 credits; 1st semester (Rannells)

139b—HISTORY OF MODERN ART. Lectures, conferences and reports.

3 credits; 2nd semester (Rannells)

151a-b—CRITICISM OF ART. Analyses, interpretations, evaluations. Specific arts, periods of art, styles of art, are examined in the light of philosophical and historical modes of art criticism.

Prerequisites: Two years of studio work in art, 2 years in history of art. 3 credits; both semesters (Rannells)

165a—INTERMEDIATE PAINTING. Still life and outdoor painting in oil and water-color mediums. A study of pictorial means and requirements. Composition problems and nine studio hours a week.

Prerequisite: 12 credits in Drawing and Painting, or approval of instructor based on actual examples of work accomplished. 3 credits; both semesters (Fisk)

165b—INTERMEDIATE PAINTING. Continuation of 165a.

3 credits; both semesters (Fisk)

166a—ADVANCED DESIGN. Individual problems in design: an introduction to professional requirements. Work in color, interiors, etc.

Prerequisite: Two years in Drawing and Design. 3 credits; both semesters (Rannells)

166b—ADVANCED DESIGN. Continuation of 166a.

3 credits; both semesters (Rannells)

167a—ADVANCED PAINTING. Still life and outdoor painting in oil and water-color mediums. An introduction to professional requirements in picture making. Composition problems and fifteen studio hours a week.

Prerequisite: 15 credits in Drawing and Painting, or approval of instructor based on actual examples of creative work accomplished. 5 credits; both semesters (Fisk)

167b—ADVANCED PAINTING. Continuation of 167a.

5 credits; both semesters (Fisk)

MUSIC

The Department of Music requires, as pre-requisite for the Master's degree, the equivalent of that required for the A. B. Degree with a major in music. Students possessing a Bachelor's degree in a field other than music may qualify as a candidate for the Master of Arts Degree with a major in music after taking the following courses in music at an accredited institution:

1. Elementary Harmony and Sight Reading 10 credits
2. Advanced Harmony, Dictation and Ear
 Training 10 credits
3. Orchestration and Conducting 2 credits
4. Form and Analysis 4 credits
5. Counterpoint and Composition 4 credits

Note.—Students, presenting credits in the above courses from an institution which is not accredited, are required to take a special examination in these courses.

A reading knowledge of one modern foreign language is required of all candidates for the Master of Arts Degree. The language to be selected shall be either French or German, except in the case of a vocal major, when Italian is preferred.

Thesis

The candidate may select as a subject for a thesis one of the following:

1. Research in some problem in the field of music education.
2. An original composition which proves the candidate's mastery of the discipline basic in harmony, counterpoint, choral and orchestral techniques. The composition must be performed in public.

110a-d—INDEPENDENT WORK. The principles of double counterpoint, canon, and fugue. A four-voice fugue must be submitted as a final project.

3 credits (Capurso and Allton)

215a, b—PIANO. A study of the major works of piano literature, such as concerti of Mozart, Beethoven, and Brahms.

3 credits (Richardson)

216a, b—STRINGS. A study of the literature of the violin including the advanced Etudes, such as Fiorillo, Rode, and Dont; and major concerti such as Mendelssohn, Bruch, Beethoven, and others.

3 credits (C. Lampert)

202—ADVANCED MUSIC HISTORY. The course is an intensive study of the earliest beginning of music to the 20th Century. The approach, however, is not provided by purely historical study. The immediate purpose of scientific history is to exhibit its politics, the economic life or the musical art of a past age as it once was. The larger purpose of the historian is to present this account of the past as an explanation of the way in which things of the present came to be as they are. In short this course is to be a history of musical thought.

2 credits (C. Lampert)

203—CHORAL LITERATURE. Either elective, or required (at the discretion of the committee on curriculum), and remedial work along the lines of choral presentation; interpretation as influenced by

harmonic and melodic structure, vowel production, tone quality, tempi, traditions, program building, et cetera.

2 credits (M. Lewis)

204—ADVANCED BAND TECHNIQUE. An advanced course in Band Techniques with concentration on band organization and materials, the technique of band conducting and general preparation of band instrumentations for balance, the study of transposition of band repertoire, and an intensive study in the field of band arranging.

2 credits (J. Lewis)

208a-b—SEMINAR IN MUSIC. One two-hour meeting is held each week with students and faculty for discussion of current developments in music found in recent books and periodicals.

1 credit (Staff)

217a, b—VOICE. A study of the more advanced type of song literature covering the classic, romantic, and modern.

3 credits

218a, b—ORGAN. A study of the major works of Bach, Mendelssohn, Franck, Widor, and modern pieces of American, French, German, and English schools.

3 credits (Cullis)

228a, b—CONCERT BAND. A course designed to furnish methods of organization, direction, and participation in concert music.

1 credit (J. Lewis)

251—PROBLEMS IN PUBLIC SCHOOL AND COMMUNITY MUSIC. This course, open only to advanced students, will consider problems in teaching, supervising, organizing, and leading public school and community activities. Students in service will have an opportunity to bring problems from their own school or community situation; and, when possible, the instructor will visit them in the field. Projects, demonstrations, readings, and discussion.

3 credits (Capurso)

252—FIELD PROBLEMS. This course is designed to permit the teacher or leader in the field to work out his local problems as an independent graduate teaching project under the guidance of the music staff.

1 credit; summer (Capurso)

253—INDEPENDENT WORK IN MUSIC EDUCATION. This course is designed for graduate students who undertake research problems in music education and is to be conducted in regular consultation with the instructor.

3 credits; 2nd summer session (Capurso)

IX. LAW

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

105—AGENCY. Steffen's Cases. Nature of the relation, competency of parties, appointment, delegation of authority, liabilities of principal and of agent, ratification, undisclosed principal, termination.
3 credits; 2nd semester (Pittman)

264—CONFLICT OF LAWS. Cheatham, Dowling and Goodrich's Cases. Domicile, jurisdiction of courts, procedure, contracts, property, movable and immovable, family law, divorce, inheritance, foreign administration, foreign judgments.
3 credits; 1st semester (Moreland)

161a-161b—CONSTITUTIONAL LAW I and II. Dodd's Cases. Division of powers, the dual system of government, scope of federal powers, taxation, money, banking, postal, military and treaty powers, regulation of commerce, the impairment of contracts, jurisdiction of federal courts, the police power, due process of law, equal protection of the law.
2 credits; each semester (Eblen)

101a-101b—CONTRACTS I and II. Williston's Cases. Fourth edition. Formation, parties, consideration, formalities contracts for the benefit of third persons, assignments, joint obligations, conditions and implied conditions, impossibility.
6 credits; 1st and 2nd semesters (Murray)

107a-107b—CRIMINAL LAW I and II. Sayre's Cases. Nature of the crime problem, the theory of punishment, procedure, characteristics of particular crimes.
2 credits; 1st and 2nd semesters (Moreland)

221a-221b—EQUITY I and II. Chafee and Simpson's Cases, Volumes I and II. Methods of enforcing and legal effects of equitable decrees, relation of common law and equity, powers of courts of equity, inadequacy of remedy at law, interests protected, balancing the equities. Specific performance, affirmative and negative contracts, mutuality consideration, conditions, marketable title, laches and the Statute of Limitations, partial performance with compensation, the Statute of Frauds, equitable conversion, equitable servitudes, misrepresentations, mistake, hardship, plaintiff's conduct as a defense.
6 credits; 1st and 2nd semesters (Pittman)

123—NEGOTIABLE INSTRUMENTS. Bills and Notes, Britton's Cases (2nd edition). Formal requisites of negotiability, acceptance, delivery, endorsement, rights and duties of holder, liability of maker, acceptor, drawer and endorser.

3 credits; 1st semester (Murray)

260a-260b—PRIVATE CORPORATIONS I and II. Frey's Cases. Characteristics, formation, powers and liabilities, rights of stockholders' directors, legislative control, dissolution, creditors.

2 credits, 1st semester; 3 credits, 2nd semester (Evans)

104—PROPERTY I and II. Personal and Real Property. Warren's Cases. The nature of possession, separation of the custody or use from the possession, bailments, finders, bona fide purchase, judicial sale, Statute of Limitations, accession, tortious confusion, gifts, sale and bailments, liens and pledges, conversion. Estates, common law method of creating and conveying estates, Statute of Uses, rights incident to the ownership of land, fixtures, easements, waste, emblements, licenses and covenants running with the land.

2 credits; each semester (Roberts)

122—PROPERTY III. Titles and Conveyancing. Warren's Cases. Adverse possession, prescription, accretion, execution and delivery of deeds, boundaries, exception and reservation, easements by implication, covenants of title, estoppel, priorities.

3 credits; 1st semester (Roberts)

162—PROPERTY IV. Future Interest. Leach's Cases on Future Interests. Rights of entry, possibilities of reverter, reversions, remainders, executory limitations, limitations to classes, powers, rule against perpetuities and illegal restraints and conditions.

3 credits; 2nd semester (Roberts)

266—SALES. Williston's and McCurdy's Cases. Subject matter of sale, executory and executed sales, bills of lading, fraud, liens and their enforcement, stoppage *in transitu*, inspection, warranty and remedies for breach of warranty, Statute of Frauds.

3 credits; 2nd semester (Murray)

102a-102b—TORTS I and II. Bohlen's Cases. Assault and battery, false imprisonment, negligence and contributory negligence, unintended non-negligent interference, deceit, malicious prosecution, defamation, interference with privacy, interference with advantageous relations.

6 credits; 1st and 2nd semesters (Eblen)

265—TRUSTS. Scott's Cases. The nature of a trust as compared with other relations, the creation and elements of a trust including charitable trusts, resulting and constructive trusts, remedies of the *cestui que* trust, the transfer by the *cestui* to trust, who are bound, liabilities of the trustee, investment of funds, termination of trusts.

4 credits; 1st semester (Evans)

163—WILLS AND THE ADMINISTRATION OF ESTATES. Warren's Cases. Testamentary capacity, the making, revocation, republication and revival of wills, lapsed and void devises and legacies, jurisdiction of courts to grant letters testamentary and of administration, the interests, contracts and transfers of the personal representative, inventory, inheritance tax, payment of debts, legacies and distributive shares.

3 credits; 2nd semester (Evans)

267—ADMINISTRATIVE LAW. Stason's Cases. Administrative power and action, administrative discretion, notice of hearing, summary action, relief against administrative action, mandamus, certiorari, and other extraordinary legal remedies, equitable relief, jurisdictional limitations, and administrative finality.

3 credits; 1st semester (Pittman)

168—ADMINISTRATION OF THE CRIMINAL LAW. Keedy's Cases on the Administration of Criminal Law. Police officers, arrest, investigation of crime, the magistrate, indictment and information jurisdiction of the trial court, venue, interstate rendition, arraignment, the petit jury, the prosecuting attorney, counsel for defense, the verdict, methods of review

2 credits; 1st semester (Moreland)

154—DAMAGES. McCormick's Cases. Nature of damages, avoidable consequences, counsel fees, certainty, compensation, damages for non-pecuniary injuries, pain, inconvenience, mental suffering, aggravation value, interest, special rules in certain actions, damages for death, eminent domain.

2 credits; summer session (Moreland)

148—DOMESTIC RELATIONS. Jacob's Cases. Marriage and divorce, property interests of husband and wife, mutual obligations of the spouses, parent and child.

2 credits; 1st semester (Moreland)

145—INSURANCE. Goble's Cases. Insurable interests, the contract, concealment, representations and warranties, implied conditions, waiver and estoppel, construction.

2 credits; 2nd semester (Murray)

173—CREDIT TRANSACTIONS. Sturges' Cases on Security. This course deals with the subject matter usually covered in courses in suretyship and mortgages; also, problems of collateral, banking, distribution of stocks and bonds, pledges and conditional sales.

3 credits; 1st semester (Roberts)

178—CREDITOR'S RIGHTS. Hanna's Cases. Enforcement of judgments; fraudulent conveyances; general assignments; receivership; bankruptcy; assets; distribution.

3 credits; 2nd semester (Roberts)

179—LEGISLATION. Parkinson's Cases. Typical federal and state statutes will be used. The history of legislation, legislative agencies, content, preparation, province and subject matter, legislative drafting, means of making laws effective, mechanics, interpretation, operation, amendment, abrogation and repeal, relation of traditional law to legislation. Three hours per week.

2nd semester (Eblen)

249—MUNICIPAL CORPORATIONS. Tooke's Cases. Incorporation and existence, municipal officers, revenue, indebtedness, police power, zoning, liability for injuries received upon contracts implied in law and on implied contracts.

2 credits; 1st semester (Randall)

152—OIL AND GAS. Kulp's Cases. Nature of landlord's right in oil and gas, interference, measures of damages, the oil and gas lease, drilling operations, storage and use of oil and gas, pipe line and transportation companies, taxation.

2 credits; summer session (Moreland)

250—PUBLIC UTILITIES. Robinson's Cases. Nature of public service, public employment and profession, withdrawal, duty to public, refusing service, commencement of service, management, liability for default, termination of service, regulation of charges, discrimination.

3 credits; 2nd semester (Moreland)

147—QUASI-CONTRACTS. Woodruff's Cases. Nature of quasi-contracts, benefits conferred by mistake, benefits conferred where further performance is impossible or contract is illegal or unenforceable, benefits conferred without contract or under compulsion.

2 credits; 1st semester (Murray)

253—TAXATION. Magill and Maguire's Cases. Jurisdiction, public purpose, classification, exemptions, taxation of governmental agencies, direct and indirect taxes.

3 credits; 1st semester (Eblen)

144—USE OF LAW BOOKS. Selected Problems, Eldean's "How to Find the Law." How to find the law, use of digests, reports, textbooks, and encyclopedias.

No credit; 1st semester (Librarian)

267—TRADE REGULATION. Oppenheim's Cases. Contracts not to compete at common law; competitive practices; intimidating and molesting; unfair practices; unfair advertising; combinations; the earlier statutes and the N. I. R. A.

3 credits; 2nd semester (Eblen)

277—STATUTORY INTERPRETATION. de Sloovere's Cases. Judicial notice; process of interpretation; subject matter and purpose of the statute; context; associated words; extrinsic aids; relation to other statutes and to the common law; mandatory and directory provisions; operation; effect; repeal.

2 credits; summer session (Murray)

142—INDUSTRIAL RELATIONS. Albertsworth's Cases. The servant at common law, constitutionality of compensation acts, Kentucky and other compensation acts, abolishment of common law defenses, class legislation, police power, compulsory acts, "personal injury by accident", sunstroke, pre-existing diseases, traumatic injuries, occupational diseases, the locus of the accident, horseplay, an intensive study of the provisions of the Kentucky Workmen's Compensation Act.

2 credits; summer session (Moreland)

X. SOCIAL WORK

Perhaps no other field offers more challenging opportunities to young men and women of today than this rapidly expanding field of social work. Federal grants-in-aid together with local appropriations have made possible the almost phenomenal development of public welfare services. Yet administrators of federal, state, and county programs are finding their work hampered by inability to secure adequately trained personnel. Social workers are needed to give competent assistance to those in trouble—the unemployed, aged, the transient, physically and mentally handicapped; the neglected, dependent, delinquent child. They are in demand also for programs which will prevent the recurrence of such problems—for group work, social welfare planning, and research.

Standards of training for social work have risen rapidly until today there is national acceptance of the fact that professional training for social work must be on a graduate level. Since social work rests upon a foundation of all the social sciences, students desiring to take graduate training are expected to have undergraduate preparation in each of the social sciences. By common agreement the first graduate year is built about the generic methods and principles common to all specialized fields of social work. Field work is also provided in order that the student may learn under supervision to integrate theory with practice and to master some of the basic skills of the profession. In recognition of these facts the University of Kentucky extended its limited curriculum in Social Work to provide for the first graduate year. In order to protect the status of students taking these courses, it is making every effort to meet the requirements of the American Association of Social Workers and the American Association of Schools of Social Work.

Requirements for the first graduate year in social work: The University offers the basic first year in graduate training in social work. Students are eligible for admission to this training who (a) meet the general requirements for admission to the graduate school, and (b) offer twenty-four semester hours of undergraduate work in the social sciences. Students with a bachelor's degree from an accredited institution who lack this prerequisite may be admitted to graduate social work courses provided they also carry work in the social sciences to make up their deficiency.

The department will also admit to its graduate course a limited number of mature persons with successful experience in social work or allied fields who do not have a bachelor's degree from an accredited institution. However, no graduate credit is given for courses taken under this arrangement.

Students desiring to enter upon graduate training in social work should make application to the head of the department on blanks provided by the department at least two weeks before the opening of the academic year in order that qualifications may be considered and plans made for field work placements.

200—PUBLIC WELFARE ADMINISTRATION. An introduction to the historical background, philosophy, and methods of tax-supported social work, including public assistance, institutional care, and other welfare services. Problems of the interrelationship of federal, state, and local services, financing, standards, and supervision will be among those considered.

2 credits; 1st semester

205—CHILD WELFARE SERVICE. A study of the philosophy, methods, and techniques of child welfare services. Problems relating to dependent, delinquent, handicapped, and neglected children and their treatment and care in their own homes, foster homes, or institutions will be discussed.

2 credits; 2nd semester

210—PSYCHIATRIC INFORMATION FOR SOCIAL WORKERS. An analysis of the personality development, and behavior patterns with special reference to psychiatric interpretations and their implications for social case work.

2 credits; 1st semester

213—GENERIC SOCIAL CASE WORK, I. A study of the generic processes of social case work. Includes a consideration of the different approaches to case work; social diagnosis and treatment; techniques of observation, interviewing, recording, evaluation; and professional ethics.

2 credits; 2nd semester

217—GENERIC SOCIAL CASE WORK, II. An advanced course built around the theoretical aspects of case work problems encountered by the student in field work and supplemented by discussions of other cases.

2 credits; 2nd semester

220a—SUPERVISED FIELD WORK. Fifteen hours per week of supervised field work.

4 credits; 1st semester

220b—SUPERVISED FIELD WORK. Fifteen hours per week of supervised field work.

4 credits; 2nd semester

227—PROBLEMS OF RURAL SOCIAL WORK. Rural needs and social welfare programs to meet them will be studied in selected rural areas and the findings will be related to larger social welfare problems and programs. The relationship of social work programs to other community programs in these areas will also be considered.

2 credits; 2nd semester (Palmer)

230—SOCIAL WELFARE PLANNING. Methods and techniques of social welfare planning for the treatment and prevention of social problems. Analysis of the needs and resources, coordination of existing agencies, financing and developing chest and council programs, and the interpretation of social work to the community will be among the subjects treated.

2 credits; 1st semester (Palmer)

215—SOCIAL STATISTICS. Application of statistics to social work problems. Recent studies will be examined critically. Attention will be given to registration of social statistics, use of statistics as administrative controls, interpretation and preparation of statistical reports.

Prerequisite: Mathematics

2 credits; 2nd semester

24 or 124 or their equivalent.

Hygiene 100a (Public Health) may be offered as a substitute for the required course, Medical Information for Social Workers.

GRADUATE STUDENTS

FELLOWS

George O. Comfort	Kalamazoo, Michigan
Curtis Evan Hutton	Berry
John Vredenburgh McQuitty	Gainesville, Florida
Earl Myron Nallinger	Lexington
Dorothy Alice Somerville	Bell, California

SCHOLARS

Ernest Lynn Cleveland	Lebanon
Norman Oscar Creech	Moultrie, Georgia
Ruel Elton Foster, Jr.	Springfield
Elizabeth Bruce Hardwick	Lexington
Gilbert Stuart Holbrook	Owensboro
Carroll Powell Lewis	Georgetown
Phil Middleton Miles	Lexington
James Randolph Rash, Jr.	Henderson
Sarah Lavina Stephens	Liberty, North Carolina

OFFICERS OF GRADUATE CLUB

PRESIDENT

Harold E. Huber, Jr.	Louisville
---------------------------	------------

VICE-PRESIDENT

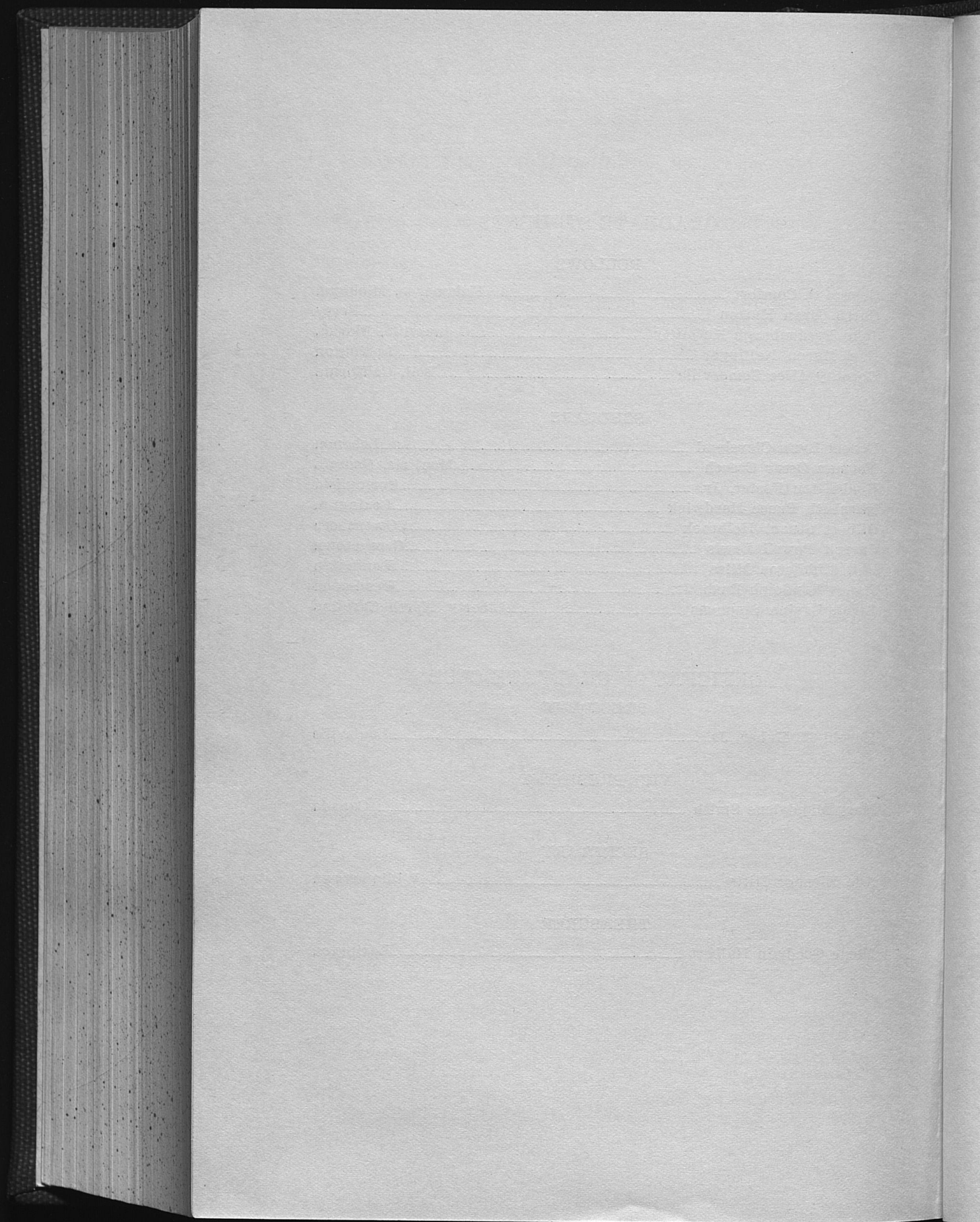
Mary Magdalene Smith	Canada
----------------------------	--------

SECRETARY

Ada Eleanor Mitts	Williamstown
-------------------------	--------------

TREASURER

Marie Goodwin Halbert	Lexington
-----------------------------	-----------



INDEX

—A—

	Page
Administration	108
Admission to graduate standing	5
Advanced degrees offered	5
Agricultural Education	112
Agricultural Entomology	90
Agriculture	90
Agronomy	91
Anatomy and Physiology	63
Animal Industry	92
Animal Pathology	95
Anthropology and Archæology	65
Application for degrees	7
Applied Mechanics	129
Art	149
Astronomy	80

—B—

Bacteriology	66
Basketball	127
Biological Sciences	63
Botany	69
Business Education	113

—C—

Certificate in Library Science	29
Chemistry	75
Civil Engineering	130
Commerce	36
Communication Engineering	136
Courses of Study	17
Credits	7

—D—

Dairying	93
Degrees conferred	5
Degrees in Agriculture	9
Degrees in Art	149
Degrees in Education	8
Degrees in Engineering	10
Degrees in Home Economics	9
Degrees in Music	150
Degrees in Public Health	9
Dissertation	13

	Page
Distributive Occupations	114
Doctorate	11
Doctorate in Education	107
Doctorate in History	43
Doctor's degrees	10
Drawing	130

—E—

Economics and Commerce	36
Education	107
Educational Administration	108
Educational Psychology	115
Electrical Engineering	134
Elementary Education	115
Engineering	129
Engineering Administration	129
Engineering Drawing	130
English	20
Entomology	74, 90
Examinations	8

—F—

Faculty	3
Farm Economics	95
Farm Engineering	99
Farm Management	96
Fees	6
Fellows	161
Fellowships and Scholarships	15
Fine Arts	149
Football	127
French	32

—G—

Geology	78
German	25
Graduate Club	16, 161
Graduate faculty	3
Graduate work in Law	153
Greek	20
Gymnastics	126

—H—

Heating and Ventilating	139
Highway Engineering	132
History	42
History divisions	44
History of Education	118

	Page
Home Economics	100
Home Economics Education	118
Horticulture	103
Hygiene and Public Health	70
—I—	
Industrial Education	120
Inter mural Athletics	127
—J—	
Journalism	27
—K—	
Kentucky students	6
—L—	
Land Economics	96
Language requirements	8, 12
Languages and Literatures	19
Latin	19
Law	153
Library Science	29
Livestock Judging	93
—M—	
Majors	7, 12
Marketing	105
Markets and Rural Finance	104
Master's degrees	7
Mathematics	80
Mathematics and Astronomy	80
Mechanical Engineering	138
Mechanics	129
Medical Gymnastics	126
Medical Technology	64
Metallurgical Engineering	141
Mining Engineering	145
Minors	7, 12
Music	150
—N—	
Nutrition	95
—O—	
Officers of Administration	2
Officers of Graduate Club	161
Opportunities in Social Work	158
—P—	
Painting	150

	Page
Paleontology	78
Part-time work	7
Petroleum Production Engineering	147
Ph. D. degrees	5
Philosophy	49
Philosophy of Education	120
Physical Education	126
Physical Sciences	75
Physics	84
Physiology	93
Political Science	50
Poultry Production	94
Prerequisites	6
Prerequisites in Music	150
Printing of dissertation	13
Professional degrees	8
Psychology	55
Public Health	70
—Q—	
Qualifying Examination	13
—R—	
Railroad Engineering	132
Registration	6
Required courses	7
Requirements for advanced degrees	7, 12
Requirements for degrees in Agriculture	106
Requirements for degrees in Education	107
Requirements for degrees in Music	150
Requirements for Social Work	158
Residence	7, 13
Romance Languages	32
Rural Finance	104
Rural Sociology	97
—S—	
Sanitary Engineering	133
Scholars	161
Scholarships	15
Secondary Education	122
Social Sciences	36
Social Work	158
Sociology	60
Spanish	34
Structural Engineering	133
Surveying	132

	—T—	Page
Theses		8
Training in Social Work		158
Transfer of credits		8
Transcripts		6
Tuition		6
	—U—	
University organization		163
	—V—	
Vocational Education		126
	—Z—	
Zoology		73

ORGANIZATION

UNIVERSITY OF KENTUCKY

Lexington, Kentucky

Frank L. McVey, Ph. D., LL. D., President

COLLEGE OF ARTS AND SCIENCES

Paul P. Boyd, M. A., Ph. D., Dean

Courses in Arts, Sciences, Journalism

COLLEGE OF AGRICULTURE

Thomas P. Cooper, B. S., Dean and Director

Courses in Agriculture and Home Economics

Experiment Station

Extension Division of Agriculture

COLLEGE OF ENGINEERING

James Hiram Graham, B. C. E., C. E., Dean

COLLEGE OF LAW

Alvin E. Evans, Ph. D., J. D., Dean

COLLEGE OF EDUCATION

William S. Taylor, Ph. D., Dean

COLLEGE OF COMMERCE

Edward Wiest, A. M., Ph. D., Dean

GRADUATE SCHOOL

William D. Funkhouser, A. M., Ph. D., Sc. D., Dean

SUMMER SESSION

J. E. Adams, Ph. D., Director

UNIVERSITY EXTENSION DEPARTMENT

Louis Clifton, M. A.

For information regarding courses and catalogs, address Leo M. Chamberlain, Registrar, University of Kentucky, Lexington, Kentucky