

958. Seminar in Collective Bargaining
Spring. 4(3-0) EC 858 or approval
of school.
Critical study of selected contemporary areas
and issues in collective bargaining.

**LABORATORY ANIMAL
RESOURCES LAR**

College of Veterinary Medicine

**501. Introduction to Veterinary
Medicine I**

Summer. 2(2-0) Admission to profes-
sional veterinary program. Interdepartmental
with and administered by the Small Animal
Surgery and Medicine Department.
Species and breed identification, predisposition
for specific diseases, basic care and feeding,
restraint and handling of small domestic ani-
mals, unusual pet, and laboratory animals.

824. Laboratory Animal Medicine
(VSM 824.) Fall, Spring. 3(2-3)
Completion of ninth-term professional Veteri-
nary Medicine program.

Basic physiologic data, housing requirements,
genetics, breeding systems, diseases, humane
practices, and nutrition, of major laboratory
animal species; administration of animal quar-
ters, techniques of handling and treatment.

**825. Comparative Medical
Experimentation**
Winter. 2(1-3) Graduate status, B.S.
in biological sciences and approval of depart-
ment.
Critical analysis of animal experimentation re-
ported in biological journals related to the
students' interest with special emphasis on
effects of environment and host variables upon
validity of experimental results.

826. Laboratory Animal Pathology
Spring. 4(3-3) Graduate status and
approval of department. Interdepartmental with
the Department of Pathology.
Macro and microscopic studies on the diseases
of laboratory animals, with special emphasis on
naturally-occurring diseases which might inter-
fere with the interpretation of experimental
results.

LANDSCAPE ARCHITECTURE

See Urban Planning and Landscape Architecture

**LARGE ANIMAL SURGERY
AND MEDICINE LSM**

College of Veterinary Medicine

**412. Livestock Hygiene and Disease
Control**
(VSM 412.) Winter. 3(3-0) Jun-
iors; Agriculture majors.

Fundamentals of health and disease in animals,
relation of infectious and parasitic diseases of
animals to human health, disease prevention
and role of veterinarian in preventive medicine.

**488. The Impact of Animal Resource
Management Upon the World's
Developing Nations**
Winter. 3(4-0)
For course description, see Interdisci-
plinary Courses.

**502. Introduction to Veterinary
Medicine II**
Spring. 4(3-3) Admission
to the professional veterinary program. Inter-
departmental with and administered by the
Small Animal Surgery and Medicine Depart-
ment.
Anesthetic principles, agents, and techniques.
Basic surgical principles, including aseptic
technic, hemostasis, wound healing, suturing
and suturing materials. Fundamentals of radi-
ology.

**503. Introduction to Veterinary
Medicine III**
Spring. 4(3-3) Admission to profes-
sional veterinary program. Interdepartmental
with the Department of Small Animal Surgery
and Medicine.
Physical and systemic examination of the vari-
ous domestic and laboratory species. Common
restraint procedures, clinical skills, diagnostics
and an approach to clients are included.

505. Large Animal Clinic I
Fall, Winter, Spring, Summer. 3(0-10)
Eighth-term or ninth-term Veterinary Medicine
students.

Clinical instruction and experience in diagnosis,
patient care, medication, surgery, disease pre-
vention, and herd health.

**521. Large Animal Surgery and
Medicine I**
(VSM 521.) Fall, Spring. 8(7-3)
Seventh-term Veterinary Medicine students.
Occurrence, etiology, symptomatology, diagnosis,
prognosis, treatment and prevention of diseases
of reproductive, digestive, and respiratory sys-
tems. Demonstrations of laboratory experience
in basic clinical skills including restraint, diag-
nosis, medication, and surgery.

**522. Large Animal Surgery and
Medicine II**
(VSM 522.) Winter, Summer. 6(5-3)

521.
Occurrence, diagnosis and treatment of surgical
diseases of large animals. Discussion of dis-
eases of cardiovascular, hematopoietic, urinary,
nervous and integumentary systems. Demonstra-
tions and laboratory experience in large animal
surgery techniques.

**523. Large Animal Surgery and
Medicine III**
(VSM 523.) Fall, Spring. 7(7-0)

522.
Occurrence, diagnosis and treatment of surgical
and reproductive diseases. Includes radiology
and diseases of locomotion.

531. Meat Hygiene
(VSM 531.) Fall, Spring. 2(2-0)
Ninth-term Veterinary Medicine students.

Judging fitness of meat for human consumption
based on a knowledge of bacteriology, para-
sitology and pathology. Organization and oper-
ation of meat inspection programs. Field trip
required.

605. Large Animal Clinic II
(VSM 605.) Fall, Winter, Spring,
Summer. 12(0-36) 505.

Advanced clinical instruction and experience in
diagnosis, patient care, medication, surgery, dis-
ease prevention, and herd health. Includes
handling of clinic patients under direct super-
vision of staff veterinarians and ambulatory
clinic.

**624. Large Animal Surgery and
Medicine IV**
(VSM 624.) Winter, Summer. 4(4-0)
523.

Etiology, pathogenesis, epidemiology, pathologi-
cal changes, differential diagnosis, prevention,
control and treatment of specific infectious dis-
eases of large animals.

**630. Veterinary Economics and
Practice Management**
(VSM 630.) Fall, Spring. 3(3-0)
Veterinary medicine students.

Management and business principles of veteri-
nary medical practice.

**809. Problems in Large Animal
Surgery**
(VSM 809.) Fall, Winter, Spring,
Summer. Variable credit.

**811. Problems in Large Animal
Medicine**
(VSM 811.) Fall, Winter, Spring,
Summer. Variable credit.

813. Seminar
(VSM 813.) Fall, Winter, Spring. 1
credit.

823. Special Surgery
(VSM 823.) Spring. 3(1-6) May re-
enroll for a maximum of 6 credits. Approval
of department.
Surgical techniques and tissue reactions follow-

899. Research
(VSM 899.) Fall, Winter, Spring,
Summer. Variable credit. May re-enroll for
a maximum of 18 credits. Approval of de-
partment.
Research on thesis problems.

LATIN

See Romance Languages

**LINGUISTICS AND ORIENTAL
AND AFRICAN LANGUAGES**

College of Arts and Letters

Courses in CHINESE and JAPANESE on the 300
level or higher are normally conducted in the
language.

**Linguistics and Oriental and African
Language Courses LOA**

299. Special Projects
Fall, Winter, Spring, Summer. Variable
credit. May re-enroll for a maximum of 18
credits. Approval of department.
Work in areas outside regular course offerings.

499. Special Projects
Fall, Winter, Spring, Summer. Variable
credit. May re-enroll for a maximum of 18
credits. Approval of department.
Work in areas outside regular course offerings.

African Languages

AFR

101. African Languages-Elementary
Fall. 4(3-2) May re-enroll for 101-102-103 sequence in more than one African language.

Comprehension and speaking taught by a linguist with native informants. Offerings include Bemba, Hausa, Ibo, Pidgin, Swahili, Yoruba. These and other African languages are taught upon sufficient demand and availability of instructors.

102. African Languages-Elementary
Winter. 4(3-2) May re-enroll for 101-102-103 sequence in more than one African language. 101.

Continuation of 101.

103. African Languages-Elementary
Spring. 4(3-2) May re-enroll for 101-102-103 sequence in more than one African language. 102.

Continuation of 102.

200H. Honors Work
Fall, Winter, Spring. 1 to 16 credits.
Approval of department.

201. African Languages-Intermediate
Fall. 4(4-0) May re-enroll for 201-202-203 sequence in more than one African language. 103 in appropriate language or approval of department.

Continuation of African Languages-Elementary. Comprehension, speaking, reading and writing taught by a linguist with native informants. See AFR 101 for languages available.

202. African Languages-Intermediate
Winter. 4(4-0) May re-enroll for 201-202-203 sequence in more than one African language. 201.

Continuation of 201.

203. African Languages-Intermediate
Spring. 4(4-0) May re-enroll for 201-202-203 sequence in more than one African language. 202.

Continuation of 202.

400H. Honors Work
Fall, Winter, Spring. Variable credit.
Approval of department.

420. African Literature in Translation
(C L 420.) Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits. Juniors or approval of department.

Development and influence of the ideas, forms and motifs of African literatures in the literatures of the world.

450. African Languages-Advanced
Fall, Winter, Spring. Variable credit.
May re-enroll for maximum of 18 credits. Approval of department.

Advanced training or specialized research in particular African languages.

Chinese

CHS

101. Elementary Chinese
Fall. 4(3-5)

Introduction to Mandarin, the official spoken language of China, with emphasis on pronunciation drill and conversation practice.

102. Elementary Chinese
Winter. 4(3-5) 101.

Continued practice in conversation and aural comprehension; introduction to the reading and writing of Chinese characters.

103. Elementary Chinese
Spring. 4(3-5) 102.

Continuation of 102 and grammatical analysis of basic Chinese sentence structure.

200H. Honors Work
Fall, Winter, Spring. 1 to 16 credits.
Approval of department.

201. Second-Year Chinese
Fall. 3(3-0) 103.

Conversation, reading, and writing at the intermediate level.

202. Second-Year Chinese
Winter. 3(3-0) 201.

Reading of advanced texts; introducing Chinese radicals and practice in the use of a Chinese dictionary.

203. Second-Year Chinese
Spring. 3(3-0) 202.

Continuation of 202; selected texts from Chinese newspapers, periodicals, and political journals.

221. Second-Year Conversation and Composition
Fall. 2(2-0) 103.

Conversation and composition at the intermediate level to supplement 201.

222. Second-Year Conversation and Composition
Winter. 2(2-0) 221.

Continuation of 221.

223. Second-Year Conversation and Composition
Spring. 2(2-0) 222.

Continuation of 222.

301. Readings in Modern Chinese Literature
Fall. 3(3-0) 203.

Selected short stories from authors of the twentieth century.

302. Readings in Modern Chinese Literature
Winter. 3(3-0) 301.

Selected essays from authors of the twentieth century.

303. Readings in Classical Chinese Literature
Spring. 3(3-0) 302.

Selections from the writings of the important philosophers, historians, and poets.

321. Conversation and Composition
Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits. 203.

Directed topical conversation and practice in composition.

400H. Honors Work
Fall, Winter, Spring. Variable credit.
Approval of department.

401. Survey of Chinese Literature
Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits. Oral com-

mand and reading knowledge of Chinese language.

Survey of Chinese literature from earliest record to contemporary writings. Lectures and discussions conducted in Chinese. Most assigned readings in Chinese, some in English translation.

420. Oriental Literature in Translation
(C L 419.) Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits. Juniors or approval of department.

Development and influence of the ideas, forms and motifs of Far Eastern literatures in the literatures of the world.

431. Chinese Poetry
Fall. 3(3-0) Reading knowledge of Chinese.

Rise and development of Chinese poetry with particular attention to poetry of the T'ang Dynasty.

432. Chinese Drama
Winter. 3(3-0) Reading knowledge of Chinese.
Special emphasis on drama of the Yuan Dynasty.

433. Chinese Novels
Spring. 3(3-0) Reading knowledge of Chinese.
The most important vernacular novels.

Japanese

JAP

101. Elementary Japanese
Fall. 4(4-1)

Spoken and written Japanese; emphasis on conversation and easy reading.

102. Elementary Japanese
Winter. 4(4-1) 101.

Continuation of 101.

103. Elementary Japanese
Spring. 4(4-1) 102.

Continuation of 102.

201. Second-Year Japanese
Fall. 3(3-0) 103.

A second-year course, stressing both oral and written Japanese.

202. Second-Year Japanese
Winter. 3(3-0) 201.

Continuation of 201.

203. Second-Year Japanese
Spring. 3(3-0) 202.

Continuation of 202.

221. Second-Year Composition
Fall. 2(2-0) 103.

Review grammar and composition to supplement 201.

222. Second-Year Composition
Winter. 2(2-0) 221.

Continuation of 221.

223. Second-Year Composition
Spring. 2(2-0) 222.

Continuation of 222.

400H. Honors Work
Fall, Winter, Spring. Variable credit.
Approval of department.

Linguistics

LIN

- 200. Language and Linguistics**
Fall, Winter, Spring. 3(3-0)
Especially for students in areas other than linguistics, this course consists of an introduction to language and linguistics, emphasizing the application of linguistics to various other disciplines.
- 401. Introduction to Linguistics**
Fall, Winter, Spring. 3(3-0) Juniors or approval of department.
Scientific study of language.
- 402. Phonetics and Phonemics**
Fall, Winter, Spring. 3(3-0) 401 or approval of department.
Techniques for scientific description of languages. Problems of phonemic analysis.
- 403. Morphology**
Fall, Winter, Spring. 3(3-0) 402 or concurrently.
Problems of morphemic analysis.
- 421. Articulatory Phonetics**
Fall, Winter, Spring. 3(2-2) Approval of department.
Development of phonetic skills for the learning and teaching of languages.
- 431. Introduction to Transformational Grammar**
Winter. 3(3-0) 403 or approval of department.
Transformational linguistics with emphasis on the theory of syntax. Writing phrase structure rules and transformations.
- 441. Introductory Readings in Linguistics**
Fall, Winter, Spring. 3(3-0) 401.
Critical reading of basic texts of modern linguistics.
- 471. Principles and Methods of Historical Linguistics**
Winter. 3(3-0) 403 or concurrently.
An elementary introduction to types of linguistic change and the methods used by the historical and comparative linguist. Exercises in comparative and internal reconstruction.
- 811. History of Linguistics**
Fall, Winter, Spring 3(3-0) Approval of department.
Selected topics in the historical development of linguistic theory.
- 815. Dialectology**
Winter. 3(3-0) Approval of department.
Cultural and geographic factors in the social and spatial diffusion of linguistic traits.
- 821. Phonological Analysis**
Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits. 403 or approval of department.
Problems of advanced phonological analysis.
- 831. Grammatical Analysis**
Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits. 403 or approval of department.
Problems of advanced structural analysis.
- 835. Semantics of Natural Languages**
Spring. 3(3-0) Approval of department.
Selected topics in the history, techniques and theories of the semantics of natural languages.

- 838. Interdisciplinary Seminar on Africa**
For course description, see Interdisciplinary Courses.
- 841. Field Methods**
Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits. 403 or approval of department.
Working with informants, collecting and processing linguistic information.
- 851. African Linguistics**
Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits. 403 or approval of department.
Phonologic, morphologic and semantic characteristics of one or a group of related African languages.
- 860. Special Projects**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.
Supervised study of specialized linguistic projects.
- 871. Comparative Indo-European Linguistics**
Spring. 3(3-0) 471.
Comparative Indo-European linguistics.
- 880. Seminar in Linguistics**
Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits. Approval of department.
Topics of current relevance in linguistics.
- 899. Research**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.
- 970. Graduate Reading Course**
Fall, Winter, Spring. 3(3-0)
Supervised readings in linguistics for Ph.D. candidates.
- 980. Seminar in Linguistics**
Fall, Winter, Spring. 3(3-0)
Special topics in linguistics for Ph.D. candidates.
- 999. Research**
Fall, Winter, Spring. Variable credit. Approval of department.

South Asian Languages

SAL

- 101. South Asian Languages—Elementary**
Fall. 4(3-2) May re-enroll for 101-102-103 sequence in more than one South Asian Language.
The spoken language. Emphasis on intensive pronunciation, comprehension drills, and developing sentence structure. Orthography introduced.
- 102. South Asian Languages—Elementary**
Winter. 4(3-2) May re-enroll for 101-102-103 sequence in more than one South Asian Language. 101.
Continuation of 101.
- 103. South Asian Languages—Elementary**
Spring. 4(3-2) May re-enroll for 101-102-103 sequence in more than one South Asian Language. 102.
Continuation of 102.

- 201. South Asian Languages—Intermediate**
Fall. 4(3-2) May re-enroll for 201-202-203 sequence in more than one South Asian Language. 103.
Continued development of oral and aural skills. Study of grammar, readings in simple texts and exercises in composition.
- 202. South Asian Languages—Intermediate**
Winter. 4(3-2) May re-enroll for 201-202-203 sequence in more than one South Asian Language. 201.
Continuation of 201.
- 203. South Asian Languages—Intermediate**
Spring. 4(3-2) May re-enroll for 201-202-203 sequence in more than one South Asian Language. 202.
Continuation of 202.

LYMAN BRIGGS COLLEGE

LBC

- 111. College Algebra**
Fall. 5(5-0) Placement Test or approval of the college. Not open to students with credit in MTH 108, 109, or 111.
Topics covered include polynomial, trigonometric, exponential, and logarithmic functions, their inverses and their properties; and analytic geometry with an emphasis on conics.
- 112. Calculus I**
Fall, Winter, Spring. 5(5-0) 111 or MTH 109; 125 concurrently. Not open to students with credit in MTH 112.
Topics covered include sequences and their limits, derivatives of rational power functions, techniques of differentiation, applications, numerical methods for evaluating polynomials and approximating square roots.
- 113. Calculus II**
Fall, Winter, Spring. 5(5-0) 112 and 125. Not open to students with credit in MTH 113.
Continuation of 112. Topics covered are applications of the derivative integration, exponential, logarithmic, and trigonometric functions, power series, and numerical methods for integrating, root finding, and series evaluating.
- 125. Elements of Computer Programming**
Fall, Winter, Spring. 3(3-0) 112 concurrently. Students may not receive credit for 125 and CPS 110 or CPS 120.
FORTRAN programming; arithmetic and logical operations; functions and subroutines; applications to concurrent topics in mathematics; principles of operation and programming of batch processing and time-shared computers.
- 131. Third Culture Rhetoric I**
Fall, Winter. 3(3-0)
Instruction and practice in expository writing. Paper and report topics drawn from readings which relate science and human values.
- 132. Third Culture Rhetoric II**
Winter, Spring. 3(3-0) 131.
Continuation of 131 with emphasis upon investigative papers. Selected students may meet course requirements through independent study.
- 140. Biology I**
Winter, Spring. 3(1-3) Not open to students with credit in B S 212.
Development of the concept of terrestrial and aquatic ecosystems and the maintenance and