Linguistics

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) Junior 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 descriptive study of language. 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 language.

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.

836. 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.
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.

990. 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

101. 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.

102. 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.

103. South Asian Languages—Intermediate
Spring. 4(3-2) May re-enroll for 101-102-103 sequence in more than one South Asian Language. 102.
Continuation of 102.

LYMAN BRIGGS
COLLEGE

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 include applications of the derivative integrations, 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 130.
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(3-3) Not open to students with credit in BIO 101.
Development of the concept of terrestrial and aquatic ecosystems and the maintenance and
manipulation of energy, materials, and space at the organismal level of organization.

141. Biology II
Fall, Spring. 3(2-3) 140. Not open to students with credit in B 211 and B 213.
Elementary concepts of genetics, ecology, and population genetics.

150. Physics—Elementary Concepts
Fall. 3(3-4) MTH 109 or 109 or LBC 111 and LBC 151 concurrently.
Elementary concepts of mechanics, electricity, magnetism, and optics.

151. Introduction to Chemistry and Physics I
Fall. 4(4-3) MTH 109 or 109 or LBC 111 concurrently; high school physics or 150 concurrently.
Fundamental techniques of quantitative scientific investigation; gas laws, kinetic theory and thermodynamics.

152. Introduction to Chemistry and Physics II
Winter. 4(4-3) 151.
Topics in modern physics: photons, electrons, atoms and molecules, quantum mechanics, nuclear reactions; Bohr theory of the hydrogen atom; special theory of relativity.

153. Introduction to Chemistry and Physics III
Spring. 4(4-2) 152.
Topics in modern chemistry: atomic structure, chemical bonding, molecular orbitals, stoichiometry, chemical dynamics and equilibria, fundamentals of organic chemistry.

214. Calculus III
Fall, Winter, Spring. 5(5-0) 113.
Not open to students with credit in MTH 215.
Topics covered include infinite series, power series, and introduction to differential equations; first order, second order linear with constant coefficients, first order systems; numerical methods, power series solutions, and applications.

215. Calculus IV
Fall, Winter, Spring. 5(5-0) 114.
Not open to students with credit in MTH 216.
Introduction to the calculus of several variables.

242. Biology III
Fall, Winter. 4(4-3) 141.
Organismal growth and development from molecular genetics through life cycles of selected plant and animal species.

251. Introduction to Chemistry and Physics IV
Fall. 4(4-3) 153.
Classical physics; kinematics and dynamics of particles and rigid bodies; electricity, magnetism, electromagnetism, wave motion and wave optics.

252. Introduction to Chemistry and Physics V
Winter. 4(4-3) 251.
Chemistry of non-metals, traditional elements and coordination compounds, organic chemistry.

253. Introduction to Chemistry and Physics VI
Spring. 4(4-3) 252.
Relativity; atomic, molecular, and solid-state physics, quantum-mechanical effects and devices, nuclear models and nuclear energy levels.

256. Energy Consumption and Environmental Quality
Spring. 3(3-0) Sophomore, Interdepartmental with the Physics Department.
The role of energy as a fundamental pollutant will be discussed along with the availability of fossil energy sources. Limitations on the safe utilization of both fossil and nuclear energy will also be considered.

290. Special Problems
Fall, Winter, Spring. 1 or 2 credits.
May re-enroll for a maximum of 6 credits. Approval of college.

295. Independent Study
Fall, Winter, Summer. 1 to 4 credits. May re-enroll for a maximum of 12 credits. Approval of college.
Independent study for qualified students under direction of a faculty member.

331. Modern Fiction
Fall. 3(3-0) 132.
The study of recent short stories and novels, particularly those which might have a special value for the student of science. Student may submit original work of a fictional nature in partial fulfillment of course requirements. Selected students may meet course requirements through independent study.

332. Modern Drama
Winter. 3(3-0) 132.
The study of recent plays which have social or literary significance. Student may submit original work of a dramatic nature in partial fulfillment of course requirements. Selected students may meet course requirements through independent study.

333. Modern Poetry
Spring. 3(3-0) 132.
The study of recent verse of a literary or provocative nature. Student may submit original poetry in partial fulfillment of course requirements. Selected students may meet course requirements through independent study.

372. Introduction to Symbolic Logic
Fall, Winter. 4(4-0) Sophomores or approval of college.
Concepts, notation and application of truth-functional and quantificational logic. Special topics may include axiomatics, meta-theory, modal logic, fallacies, paradoxes, inductive argument, the justification of logic.

373. Introduction to the Philosophy of Science
Winter, Spring. 4(4-0) 372. Juniors or approval of college.
Philosophical problems about the character and justification of scientific knowledge. Possible topics: concept formation, theory construction, scientific explanation, confirmation theory, "logic" of discovery, philosophical implications of physical theories.

374. Historical Problems in the Biological Sciences
Fall, Winter. 4(4-0) Juniors or approval of college.
Various themes or periods in the biological sciences. The course may emphasize the pattern of theoretical development, changes in explanatory ideals, the interaction of external factors and scientific ideas, etc.

375. Historical Problems in the Physical Sciences
Spring. 4(4-0) Juniors or approval of college.
Various themes or periods in the physical sciences. The course may emphasize the pattern of theoretical development, changes in explanatory ideals, the interaction of external factors and scientific ideas, etc.

376. Historical Problems in Technical Change
Fall, Spring. 4(4-0) Juniors or approval of college.
Factors which influence technical change. Exploration of both historical and contemporary problems of technology and technical change.

483. Philosophy of Physical Science
Fall, Spring. 4(4-0) Nine credits in physical science or approval of department. Interdepartmental with the Department of Philosophy.
Philosophical problems of the physical sciences. The topics will be taken from such areas as: quantum mechanics, space-time, classical mechanics, relativity.

484. Philosophy of Biological Sciences
Winter, Spring. 4(4-0) Nine credits in science or approval of department. Interdepartmental with the Department of Philosophy.
Methodological notions and problems of the biological sciences such as: observation and measurement, classification, teleological and functional explanation, teleological systems, emergentism, vitalism, value neutrality.

490. Special Problems
Fall, Winter, Spring. Summer. 1 to 6 credits. May re-enroll for a maximum of 6 credits. Approval of department.

491. Senior Seminar I
Fall, Winter, Spring. 3(3-0) Seniors or approval of college.
Selected interdisciplinary problems concerned with the interface between science and society or science and man are identified and formulated. A bibliography is generated and an outline for a thesis prepared.

492. Senior Seminar II
Fall, Winter, Spring. 3(3-0) 491.
The thesis planned in 491 is written and evaluated.

495. Independent Study
Fall, Winter, Spring, Summer. 1 to 12 credits. May re-enroll for a maximum of 12 credits. Juniors.

MANAGEMENT MGT

College of Business

101. Introduction to Business
Fall, Winter. 4(4-0) Unde­

4.3 202.