603. Preceptorial Clinic
Fall, Winter, Spring, Summer. 3(0-24) to 16(0-48) May re-enroll for a maximum of 16 credits. 602, SSM 601, 611 and approval of department.
Applied large animal clinical science. Students participate in all activities in assigned private practice residencies.

604. Special Problems
Fall, Winter, Spring, Summer. 2(0-5) to 4(0-12) May re-enroll for a maximum of 12 credits. 602 and approval of department.
Comprehensive problem-solving explorations of selected clinical diseases, either systems or species oriented, in large animals.

610. Quantitative Field Work
Fall, Winter, Spring, Summer. 3(0-9) May re-enroll for a maximum of 9 credits. 602, SSM 601, 611, and approval of department.
Continuation of 603 and 611 for a maximum of 15 credits.

611. Problems in Large Animal Medicine
Fall, Winter, Spring, Summer. Variable credit.

612. Integrative Clinical Problems
Fall, Winter, Spring, Summer. 2(0-9) to 4(0-12) May re-enroll for a maximum of 12 credits. 602, SSM 601, 611, and approval of department.
Comprehensive problem-solving explorations of selected clinical diseases, either systems or species oriented, in large animals.

640. Special Problems
Fall, Winter, Spring, Summer. 2(0-5) to 4(0-12) May re-enroll for a maximum of 12 credits. 602 and approval of department.
Exploration of problems in large animal specialties to meet specific goals of students.

809. Problems in Large Animal Surgery
Fall, Winter, Spring, Summer. Variable credit.

811. Problems in Large Animal Surgery
Fall, Winter, Spring, Summer. Variable credit.

812. Seminar
Fall, Winter, Spring. 1 credit.

823. Special Problems
Spring. 3(0-6) May re-enroll for a maximum of 6 credits. Approval of department.
Surgical techniques and tissue reactions following surgery in large animals.

899. Research
Fall, Winter, Spring, Summer. Variable credit. May re-enroll for a maximum of 18 credits. Approval of department.
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 Languages Courses

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.

315. World Literature in English
Fall, 3(3-0) Interdepartmental with and administered by the English Department. Representative works, not from England or the United States, which were written originally in English especially the English literature of present or former British Commonwealth nations, and nations from the Middle East and Africa.

316. World Literature in English Translation
Winter, 3(3-0) Interdepartmental with the English Department. Significant and characteristic works of the Orient, the Middle East, and Asia in English translation.

317. Genres and Themes in World Literature
Spring. 3(3-0) Interdepartmental with and administered by the English Department. Work will center each term around a single literary genre, type or theme. Typical examples: The Quest, Literature of Revolt, Satire, Literary examples will be selected from several national literatures.

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

101. African Languages-Elementary
Fall. 5(3-0) May re-enroll for 101-102-103 sequence in more than one African language. Comprehensive and speaking taught by a linguist with native informants. Offerings include languages and characteristic works of the Orient, the Middle East, and Africa in English translation.

102. African Languages-Elementary
Winter. 5(3-0) May re-enroll for 101-102-103 sequence in more than one African language. Continued of 101.

103. African Languages-Elementary
Spring. 5(3-0) May re-enroll for 101-102-103 sequence in more than one African language. Continued of 102.

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

201. African Languages-Intermediate
Fall. 4(5-0) May re-enroll for 201-202-203 sequence in more than one African language. 103 in appropriate language or approval of department. Continued of 202.

202. African Languages-Intermediate
Winter. 4(5-0) May re-enroll for 201-202-203 sequence in more than one African language. 201. Continued of 201.

203. African Languages-Intermediate

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

420. African Literature in Translation
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 models of African literatures in the literatures of the world.

Chinese

101. Elementary Chinese
Fall. 5(3-5)
Introduction to Mandarin, the official spoken language of China, with emphasis on pronunciation, drill and conversation practice.

102. Elementary Chinese
Winter. 5(3-5) 101.
Continued practice in conversation and aural comprehension; introduction to the reading and writing of Chinese characters.

103. Elementary Chinese
Spring. 5(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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester(s)</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>223</td>
<td>Second-Year Conversation and Composition</td>
<td>Fall, Winter, Spring</td>
<td>3(3-0)</td>
<td>222. Continuation of 222.</td>
</tr>
<tr>
<td>250</td>
<td>Chinese Calligraphy</td>
<td>Spring</td>
<td>3(3-0)</td>
<td>One year in Chinese language or approval of department. The essential characteristics of and fundamental skills involved in writing Chinese characters, from the point of view of practical use.</td>
</tr>
<tr>
<td>301</td>
<td>Readings in Modern Chinese Literature</td>
<td>Fall, Winter, Spring</td>
<td>3(3-0)</td>
<td>203. Selected short stories from authors of the twentieth century.</td>
</tr>
<tr>
<td>302</td>
<td>Readings in Modern Chinese Literature</td>
<td>Winter</td>
<td>3(3-0)</td>
<td>301. Selected essays from authors of the twentieth century.</td>
</tr>
<tr>
<td>303</td>
<td>Readings in Classical Chinese Literature</td>
<td>Spring</td>
<td>3(3-0)</td>
<td>302. Selections from the writings of the important philosophers, historians, and poets.</td>
</tr>
<tr>
<td>321</td>
<td>Conversation and Composition</td>
<td>Fall, Winter, Spring</td>
<td>3(3-0)</td>
<td>May re-enroll for a maximum of 9 credits. 201. Directed topical conversation and practice in composition.</td>
</tr>
<tr>
<td>400H</td>
<td>Honors Work</td>
<td>Fall, Winter, Spring</td>
<td>Variable credit</td>
<td>Approval of department.</td>
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<tr>
<td>420</td>
<td>Oriental Literature in Translation</td>
<td>Fall, Winter, Spring</td>
<td>3(3-0)</td>
<td>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.</td>
</tr>
<tr>
<td>431</td>
<td>Chinese Poetry</td>
<td>Fall</td>
<td>3(3-0)</td>
<td>Reading knowledge of Chinese. Rise and development of Chinese poetry with particular attention to poetry of the Tang Dynasty.</td>
</tr>
<tr>
<td>432</td>
<td>Chinese Drama</td>
<td>Winter</td>
<td>3(3-0)</td>
<td>Reading knowledge of Chinese. Special emphasis on drama of the Yuan Dynasty.</td>
</tr>
<tr>
<td>433</td>
<td>Chinese Novels</td>
<td>Spring</td>
<td>3(3-0)</td>
<td>Reading knowledge of Chinese. The most important vernacular novels.</td>
</tr>
<tr>
<td>400</td>
<td>Language and Linguistics</td>
<td>Fall, Winter, Spring</td>
<td>3(3-0)</td>
<td>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.</td>
</tr>
<tr>
<td>401</td>
<td>Introduction to Linguistics</td>
<td>Fall, Winter, Spring</td>
<td>3(3-0)</td>
<td>Juniors or approval of department. Not open to students with credit in 200. The scientific study of human languages. Basic goals, assumptions, terminology, research results of modern theoretical and applied linguistics, with examples from a variety of languages.</td>
</tr>
<tr>
<td>402</td>
<td>Phonology</td>
<td>Fall, Winter, Spring</td>
<td>3(3-0)</td>
<td>401 or approval of department. Sounds and sound systems, emphasizing the four basic areas of articulatory phonetics, phonetic features and components, classical phonemics, and phonology in contemporary linguistic theories.</td>
</tr>
</tbody>
</table>
851. African Linguistics
Winter, 3(3-0) May re-enroll for a maximum of 8 credits. 401; 402 or concurrently.
Investigation of linguistic issues and phenomena in one or a group of African languages.

860. Special Projects
Fall, Winter, Spring, Summer. Variable credit. Approval of instructor.
Supervised study, reading, and research in specialized areas of linguistics.

865. Contrastive Analysis
Spring, 3(3-0) 403.
The essentials of contrastive analysis, with emphasis on methods of making such analysis. The usefulness of and controversies concerning contrastive analysis will also be discussed.

871. Comparative Indo-European Linguistics
Spring of odd-numbered years. 3(3-0)
Comparative linguistics as applied to the investigation of the development and historical relationships of the languages of the Indo-European family.

880. Seminar in Linguistics
Fall, Winter, Spring, 3(3-0) May re-enroll for a maximum of 18 credits in different topics. Approval of department.
Advanced critical study of current topics in linguistics such as applications to other disciplines, aspects of linguistic theory, child language acquisition, contrastive analysis, structure of particular languages.

889. Research
Fall, Winter, Spring, Summer. Variable credit. Approval of instructor.

890. Seminar in Linguistics
Spring, 3(3-0) May re-enroll for a maximum of 9 credits in different areas. Approval of department.
Special topics in linguistics for advanced graduate students.

999. Research
Fall, Winter, Spring. Variable credit. Approval of instructor.

South Asian Languages

SAL

101. South Asian Languages—Elementary
Fall, 5(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, 5(3-2) May re-enroll for 101-102-103 sequence in more than one South Asian Language.
Continuation of 101.

103. South Asian Languages—Elementary
Spring, 5(3-2) May re-enroll for 101-102-103 sequence in more than one South Asian Language.
Continuation of 102.

201. South Asian Languages—Intermediate
Fall, Winter, 201-202-203 sequence in more than one South Asian Language.
Continued development of oral and aural skills. Study of grammar, readings in simple texts and exercises in composition.

202. South Asian Languages—Intermediate
Winter, Spring, 201-202-203 sequence in more than one South Asian Language.
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.
Continuation of 202.

LYMAN BRIGGS COLLEGE

LBC

111. College Algebra
Fall, Spring, 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) MTH 101 or LBC 124 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 114. 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.

124. APL-Computer Programming for Scientists
Fall, Winter, Spring, 3(3-2) 112 or concurrently. Interdepartmental with the Computer Science Department.
APL programming; interactive programming techniques; arithmetic, logical, and extended APL operators; functions; applications to concurrent topics in mathematics; principles of operations of time-shared computers.

131. Third Culture Rhetoric I
Fall, Winter, 4(4-0)
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, 4(4-0) 131.
Continuation of 131 with emphasis upon investigative papers. Selected students may meet course requirements through independent study.

140. Biology I
Winter, Spring, 4(3-3) Not open to students with credit in B S 212.
The organisms and their environment. Organismal level of organization. Evolution and adaptations as forces for biological variance.

141. Biology II
Fall, Spring, 3(2-3) 140; Not open to students with credit in B S 210.
Maintenance and manipulation of materials, energy, space and information at the cellular and tissue level of organization.

142. Biology IA
Winter, Spring, 1 to 2 credits. May re-enroll for a maximum of 4 credits. 140 or concurrently.
Selected problems such as analysis of biological data, interspecific and intraspecific competition, microeubiosis, inhibiting leaf litter, spring flora, diversity, stability and evolution of natural communities.

143. Biology IIA
Fall, Spring, 2 to 4 credits. May re-enroll for a maximum of 4 credits. 141 or concurrently.
Selected biology problems considering such topics as genetics, bacterial culturing and staining techniques, photosynthesis and histological techniques.

150. Physics—Elementary Concepts
Fall, 1(2-0) MTH 105 or LBC 111 concurrently.
Elementary concepts of mechanics, electricity, magnetism and optics.

151. Introduction to Chemistry and Physics I
Fall, 4(4-3) MTH 105 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 nuclei; radioactivity, nuclear reactions, Bohr theory of the hydrogen atom; special theory of relativity.

153. Introduction to Chemistry and Physics III
Spring, 4(4-3) 152.
Topics in modern chemistry: atomic structure, chemical bonding, molecular orbitals, stoichiometry, chemical dynamics and equilibria, fundamentals of organic chemistry.

216. Calculus III
(215.) Fall, Winter, Spring, 5(5-0) 113.
Introduction to the calculus of several variables.

217. Calculus IV
(214.) Fall, Winter, Spring, 5(5-0) 216.
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.

*For prerequisite purposes this introductory biology sequence may be used in place of Biological Science 210, 211, 212.