

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.

FORTTRAN 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 BS 212.

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 BS 211.

Maintenance and manipulation of materials, energy, space and information at the cellular and tissue level of organization.

150. *Physics—Elementary Concepts*

Fall, 1(2-0) MTH 108 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 108 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.

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) 214. Not open to students with credit in MTH 214.

Introduction to the calculus of several variables.

242. *Biology III*

Fall, Winter, 4(3-3) 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, transitional 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.

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, Spring, 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.

**Description — Lyman Briggs College
of
Courses**

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, Spring. 4(4-0) University College students or approval of department.

Functions performed by business and the role of administration in our economy as a whole and in the operation of a specific business. Four major objectives: to aid students in choosing a vocation, to help Business majors select a field of concentration, to show the place of specialized techniques presented in more advanced business courses, and to give some familiarity with common business practices and terminology.

300. Production Management

Fall, Winter. 4(4-0) CPS 110, STT 121, AFA 202.

Production management in manufacturing, service and distributive firms. Operations processes, analyses and decisions. Coordination of inventories, operations and quality. Work layout, methods and standards.

302. Organization and Administration

Fall, Winter, Spring, Summer. 4(4-0) Junior Business majors; EC 201 and AFA 201.

Analysis of the internal organization structure and of executive roles and functions in the business enterprise and other goal-directed institutions. Examines administrative and managerial concepts in the context of behavioral research in business. Cases and outside research reports are used for specific analyses.

305. Materials and Purchasing Management

Fall, Winter. 4(4-0) 302 or MTA 300 or Juniors; non-majors.

Planning, organizing and controlling materials; acquisition in industrial enterprises, institutions, and government. Management of purchasing, materials movement, storage and control. Value analysis, purchasing research, vendor relations and purchase forecasting.

306. Analysis of Processes and Systems

Fall, Winter, Spring. 4(4-0) CPS 110, STT 316.

Analysis of some fundamental systems and process concepts which are basic to industrial management. The course is oriented toward computer model building, acquainting the student with the use of the computer as an instrument for analysis of complex problems in industry. Course includes consideration of criteria for efficiency and optimization, and program planning.

310. Fundamentals of Personnel Administration

(303.) Fall, Winter, Spring, Summer. 4(4-0) Juniors.

Organization, functions, and policy administration of employee relations activities in the business enterprise; consideration of new techniques of employment, training, wage payment, morale-building, and employee security.

400H. Honors Work

Winter. 1 to 15 credits. Approval of department.

Investigates models, concepts and research findings of particular significance to effective decision-making in administration, organization and management.

401. Planning and Control of Production

Winter. 4(4-0) 300, 306; Seniors.

Production planning. Inventory control, machine loading, scheduling, expediting and critical path scheduling.

402. Product Reliability and Quality Control

Spring. 4(4-0) MTA 316.

Methods of achieving satisfactory standards of product quality and reliability at minimum cost.

405. Manufacturing Policy

Spring. 4(4-0) 300, 302; Seniors.

Policy formulation in production management. Coordinating staff functions and integrating production with other activities in the firm.

409. Business Policy

Fall, Winter, Spring, Summer. 4(4-0) Seniors in business administration and 302; AFA 391; MTA 300.

Problems, methods, and analytical frameworks for building and maintaining consistent and effective policy frameworks in the business enterprise. Written and oral analyses are made of comprehensive cases cutting across the major functions within business organizations. Team and individual reports are required.

411. Personnel Selection and Development

Winter. 4(4-0) 310; MTA 317.

Manpower input problems of business organizations — manpower planning, recruitment, selection, placement, training and development at all levels. Focus is on policy issues, research findings, and advanced techniques.

412. Compensation and Motivation

Spring. 4(4-0) 310.

Manpower motivation and compensation problems in business organizations — performance appraisal, job evaluation, wage and salary administration, non-financial incentives and the impact of job content and job context factors on performance.

413. Safety, Health and Employee Benefits

(403.) Fall, Winter. 4(4-0) Juniors: 302 for majors.

Manpower maintenance problems in business organizations — organization and operation of safety and health programs, practices and trends in employee benefit plans. Focus is on issues and relevant research and techniques.

414. Human Relations in Business

(404.) Fall, Winter, Summer. 4(4-0) 302; approval of department.

Human problems in business administration: examination of the empirical research dealing

with organizational and administrative problems in business, including morale, motivation, authority, power, centralization, commitment, and mobility.

415. Managerial Approaches to Collective Bargaining

(307.) Winter, Spring. 4(4-0) 302 or Junior non-business majors.

Union-management problems and managerial strategy and tactics in collective bargaining — the union challenge, legal constraints, negotiations and operating under the contract, dimensions of cooperation and conflict.

468. Field Studies

Fall, Winter, Spring, Summer. Variable credit. May re-enroll for a maximum of 8 credits. Business administration majors and approval of department.

Planned program of observation, study, and work in selected business firms. Designed to supplement classroom study in such a way as to make maximum contribution to students' total educational experience. Field work may be arranged in finance, insurance, marketing, personnel management, production management, purchasing, real estate, retailing, transportation and banking.

499. Senior Seminar

Spring. 4(4-0) Senior majors; approval of department.

Directed reading and student research in contemporary management problems.

801. Work Design and Administration

Fall. 4(4-0)

Design, improvement, and problems in the administration of work systems with emphasis on repetitive operations. Criteria for evaluating systems. Tools for developing, analyzing, and improving procedures. Cases and projects.

802. Materials Management

Spring. 4(4-0)

Advanced study of the policies, practices and problems relating to the procurement and control of materials in business organizations.

803. Seminar in Industrial Relations

For course description, see Interdisciplinary Courses.

806. Organization and Administration

Fall, Winter, Spring, Summer. 4(4-0) 830.

Dynamics of organization: the organization seen as an open system interacting with a rapidly changing environment, as a structure of organized human cooperation, as an instrument of managerial strategy; current theory and research applied to organizational process and design.

807. Administrative Policy

Fall, Winter, Spring, Summer. 4(4-0) 833; MTA 804; AFA 889; plus 30 credits in the MBA core program.

Application of administrative theory and techniques to business situations through cases cutting across major functions within business organization. Cases viewed from standpoint of general management with consideration of social and physical environmental forces surrounding the firm.

808. Seminar in Management, Organization, and Administration

Fall, Winter, Spring, Summer. 4(4-0) May re-enroll for a maximum of 12 credits.

Philosophy, practice, research, and current problems in management, organization, and administration. Historical and current literature, lectures, discussion, individual research, cases and plant visits are methods of study used in various terms.