Description — Lyman Briggs College of Courses

332. Modern Drama
Winter. 4(4-0) 120 or 131 with 3.0 or better.
Recent plays which have social and literary significance. Students may submit original dramatic writings as partial fulfillment of course writing requirements.

333. Modern Poetry
Spring. 4(4-0) 130 or 131 with 3.0 or better.
Recent poetry of literary and social nature. Students may submit original poetry in partial fulfillment of course writing requirements.

344. Introductory Animal Systematics Laboratory
Fall. 1(0-3) ZOL 303 concurrently.
Interdepartmental with the Zoology Department.
Laboratory examination of form and function of representative vertebrate and invertebrate animals.

372. Introduction to Symbolic Logic
Fall, Winter. 4(4-0) Sophomores or approval of college.
Concepts, notation and application of truth-functional and quantifiational 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.

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. Directed Study
Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 6 credits. Juniors and approval of college.
Faculty directed studies in curricular areas which are normally related to regular course offerings.
A. Directed Study—General
B. Directed Study—Biology
C. Directed Study—Chemistry/Physics
D. Directed Study—Mathematics
E. Directed Study—Science Studies

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 and approval of college.
Student conceived individual courses of study in curricular areas. Preliminary faculty approval and continuing guidance.
A. Independent Study—General
B. Independent Study—Biology
C. Independent Study—Chemistry/Physics
D. Independent Study—Mathematics
E. Independent Study—Science Studies

MANAGEMENT MGT
College of Business

101. Introduction to Business
Fall, Winter, Spring. 4(4-0) Underclassmen 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. Operations Planning
Fall, Spring. 4(4-0) CPS 119, STT 315, AFA 262.
Operations Management—functions and techniques. Planning and acquiring physical facilities, work design and work measurement, acquisition and management of materials.

301. Operations Control
Winter. 4(4-0) 300.
Analysis and control of operations. Production control, product reliability, maintenance, cost control and management information systems.

302. Organization and Administration
Fall, Winter, Spring, Summer. 4(4-0) Junior Business majors. EC 201 and AFA 301.
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.

310. Fundamentals of Personnel Administration
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.

405. Operations Management: Current Topics
Spring. 4(4-0) 301, 302.
Consideration of current and controversial topics in the operations area. Field experience to study operations and policies in industrial, institutional, and service organizations.

406. Introduction to Management Science
Winter. 4(4-0) 306.
Quantitative models and techniques applied to various business problems. Integrating the computer into the problem solving process. Topics include linear programming, integer programming, dynamic programming, queuing problems, Bayesian Decision Theory, theory of games.
411. Personnel Selection and Development
Winter. 4(4-0) 310; MTA 317.
Manpower input problems of business organizations—manpower planning, recruitment, selec-
tion, placement, training and development at all
levels. Focus is on policy issues, research find-
ings, and advanced techniques.

412. Compensation and Motivation
Spring. 4(4-0) 310.
Manpower motivation and compensation prob-
lems in business organizations—performance
appraisal, job evaluation, wage and salary ad-
ministration, non-financial incentives and the
impact of job content and job context factors on
performance.

413. Occupational Safety and Health Administra-
tion
Fall, Winter. 4(4-0) Juniors; 302 for
majors.
Programs and procedures for control of work
accidents and maintenance of health in business
and other organizations. Analysis of costs re-
lated to employee and product safety. Ad-
ministration of a safety program in compliance
with new Federal law.

414. Human Relations in Business
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, au-
thority, power, centralization, commitment, and
mobility.

415. Managerial Approaches to Collective Bar-
ing
Winter, Spring. 4(4-0) 302 or Jun-
ior non-business majors.
Union-management problems and managerial
strategy and tactics in collective bargaining—
the union challenge, legal constraints, negotia-
tions and operating under the contrast, dimen-
sions of cooperation and conflict.

417. Minorities and Women in the World
Fall, Spring. 4(4-0) Senior majors or
approval of department. Interdepartmental with
the Department of Racial and Ethnic Studies and
the School of Social Work.
Racial, ethnic, sexual and other minority ex-
periences and problems in the world of work.
Awareness training approach (what it's like to be
... ) featuring movies, guests, subgroup discus-
sions and encounter-type exercises.

488. Field Studies
Fall, Winter, Spring, Summer. Var-
iable 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' to-
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; ap-
proval of department.
Directed reading and student research in con-
temporary management problems.

801. Work Design and Administration
Fall. 4(4-0) Design, improvement, and problems in the ad-
ministration of work systems with emphasis on
repetitive operations. Criteria for evaluating sys-
tems. Tools for developing, analyzing, and im-
proving 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.

806. Organization and Administration
Fall, Winter, Spring, Summer. 4(4-0)
Approval of department.
Dynamics of organization: the organization seen
as an open system interacting with a rapidly
changing environment, as a structure of or-
ganized human cooperation, as an instrument of
managerial strategy; current theory and re-
search applied to organizational process and
design.

807. Administrative Policy
Fall, Winter, Spring, Summer. 4(4-0)
323; MTA 304; AFA 889; plus 30 credits in
the MBA core program.
Application of administrative theory and tech-
niques to business situations through cases cut-
ting 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 prob-
lems in management, organization, and admin-
istration. Historical and current literature, lectures,
discussion, individual research, cases and plant
visits are methods of study used in various terms.

811. Advanced Problems in Personnel
Management
Fall, Spring, Summer. 4(4-0) May re-
enroll for a maximum of 5 credits. 816.
Advanced studies in selected administrative and
technical policies and practices in employment
relations, with individual and group project work
and research.

813. Human Relations in
Management
Fall. Spring. 4(4-0) Approval of
department.
The executive role: Theories and techniques of
leadership, communications, conflict manage-
ment, morale, motivation, authority, power, ex-
amined by means of cases, role playing, labora-
tory exercises, and study of behavioral science
research findings.

818. Supervisory and Executive
Development
Fall, Spring, Summer. 4(4-0) 806 or
808.
Theory and research of developmental stages of
executive careers. Special emphasis on: impact of
organization on executive potentiality; forces influ-
encing development of executive skills and abili-
ties; studies of antecedents of executive role
performance; role of training programs.

821. Production Control
Winter. 4(4-0) 801.
Planning and control of production operations,
inventory management, production and work
force smoothing, job shop scheduling and project
scheduling.

831. Computers and Systems Analysis
for Business
Fall, Winter. 4(4-0) 393 or concur-
rently; MTH 111 and STT 315 or concurrently
or 12 credits of college mathematics. Open
only to selected MBA candidates.
Computer programming and systems analysis in
business administration.

832. Statistical Methods for Business
Fall, Spring. 4(4-0) 391 or concur-
rently; MTH 111 and STT 315 or concurrently
or 12 credits of college mathematics. Open
only to selected MBA candidates.
Statistics for analysis and research in business.

833. Decision Making Models
Fall, Winter, Spring, Summer. 4(4-0)
831, 832; AFA 840 or concurrently.
Normative decision analysis in business under
different assumptions of information availability.

834. Linear Optimization Models
Fall, Spring. 4(4-0) 833, MTH 225,
STT 423.
Linear Programming: basic concepts and ter-
mology. Model building with LP with appli-
cations to problems from business. The simplex
method. Introduction to dual problems. Eco-
nomic interpretations of duality. Post-optimality
analysis.

835. Nonlinear Optimization Models
Winter. 4(4-0) 834.
Nonlinear optimization—examples and applica-
tions. Kuhn-Tucker Theory. Saddle point opti-
mality conditions. Algorithms for problems with
constraints. Unconstrained optimization; intro-
duction to search methods.
836. **Applied Stochastic Processes for Business**
Spring. 4(4-0) 936.
The structure and analysis of stochastic models common to business and economics. Topics may include the Poisson process, renewal-reward processes, discrete Markov processes, with examples from queuing, reliability, maintenance and inventory.

880. **Corporation Management and Society**
Spring. 4(4-0) 806.
Analysis of the emerging character of administrative structure of the large corporation. Administrative subunits, corporate government, stockholder and director relationships. Examination of ethics of decision-making, strategic values and priorities basic to resource allocation decisions.

881. **Organization and Control in the Political Economy: Institutions and Theory**
Winter. 4(4-0) Interdepartmental with and administered by the Economics Department. Organization and technique in choice and implementation of economic, especially planning and programming, functions of political authority.

890. **Special Problems**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

906. **Behavioral Research: Organization**
Winter. 3 credits. MTA 905.
Concepts and methods of behavioral science research that are applicable to the study of organization as a strategic device in the development of tangible and intangible values and in the control of elements of business enterprise.

907. **Behavioral Research: Business Executive**
Winter. 3 credits. 906.
Concepts and methods of behavioral science research in the study of the agents of enterprise decision-making and action. Attention is focused on the way in which decisions are made in business organizations and the multiple influences operating on the executive. Models of adjustment to the decision environment are examined.

908. **Seminar in Organization Theory**
Winter. 4(4-0) 806; doctoral candidates, master's candidates with approval of department.
Directed reading and research on issues in contemporary organization theory.

911. **Seminar in Personnel Research**
Spring. 4(4-0) 810; doctoral candidates, master's candidates with approval of department.
Directed reading and research on issues in contemporary personnel administration theory and practice.

937. **Systems Simulation**
Fall. 4(4-0) 836, STT 423, MTH 228, Interdepartmental with the Statistics and Probability Department.
The concept of a model, model building, characteristics of simulation models. Techniques of computer simulation. Simulation models in research and management planning/control, validation and experimental design. Special purpose languages.

948. **Mathematical Programming For Business**
Spring. 4(4-0) 836, STT 434, 499, STT 563, Interdepartmental with the Statistics and Probability Department. Large mathematical programs with special structure. Duality and decomposition in mathematical programming. Basic theory of dynamic programming; multistage decision processes and the principle of optimality. Risk, uncertainty, and introduction to stochastic and adaptive control processes.

949. **Advanced Applied Stochastic Processes**
Winter. 4(4-0) 936, 937, Interdepartmental with the Statistics and Probability Department. Selected topics from the following areas: Semi-Markov, Markov-renewal and regenerative process models; Markov and semi-Markov decision processes; decision theory, applications from production, inventory, reliability, queuing, and gaming theory.

999. **Research**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

MARKETING AND TRANSPORTATION ADMINISTRATION MTA

College of Business

300. **Consumption and Marketing Organization**
Fall, Winter, Spring. 4(3-3) EC 200.
Adjustment of the firm to its market environment with emphasis on competitive strategy. Assessment of market forces and opportunities with reference to social, political, economic and technological forces affecting distribution methods and institutions. Structural organization of marketing system-functions involved in effective market performance. Small group problems involving analysis of costs and efficiency.

301. **Management of Marketing Effort**
Fall, Winter. Spring. 4(2-3) 300.
Market management in relation to total enterprise. Problems, analytical tools and approaches to decisions concerning allocation of funds to various means of market cultivation. Development of promotional strategy, pricing policy and management of field selling effort. Particular attention to role of marketing research, forecasting, budgets, organization arrangements and control techniques. Use of cases in small groups.

311. **Principles of Selling**
Fall, Winter, Spring. Summer. 3(2-1)
Nature of personal selling and its requirements. Functional relationships of selling in marketing mix. Buyer motivations and selling theories, with application to various buyer-seller situations.

313. **Sales Management**
Fall, Winter, Spring. Summer. 4(4-0)
Techniques and policies in the administration of the personal sales organization with respect to the marketing strategies involved. Emphasis on the sales management problems of manufacturers.

316. **Fundamentals of Statistical Inference**
Fall, Winter, Spring. Summer. 4(3-0) STT 315. Primarily for students in the College of Business. Interdepartmental with and administered by the Statistics and Probability Department. Description of sample data, applications of probability theory, sampling, estimation, tests of hypotheses.

317. **Quantitative Business Research Methods**
Fall, Winter, Spring. Summer. 4(3-3)
Interdepartmental with the Statistics and Probability Department. Application of statistical techniques to business decision-making. Topics covered include applications of linear regression and correlation, analysis of variance, selected non-parametric tests, time series, and index numbers.

335. **Food Processing and Distribution Management**
(4.5) Winter. 3(3-0) 300 or FSM 200. Interdepartmental with Food Systems Economics and Management. Analysis of problems faced in the food processing and distribution system. Includes functional interrelationships, consumer orientation and future development.

341. **Transport Requirements and Programming**
Fall, Spring. Summer. 4(4-0) EC 209.
Transportation and distribution systems are presented as functional entities capable of introducing change into the economic system and capable of reacting to changes in other segments of the economy. Subject matter includes regional economic growth, inter-regional trade, macro-location theory, transportation and distribution system alternatives, regional transportation policy.

351. **Retail Administration**
Fall, Winter, Spring. 4(4-0) 300.
Survey of retailing and its role in distribution. Management policy areas studied include administrative organization, locational decisions, buying, pricing, merchandising, sales promotion, personnel and over-all planning and coordination in retailing firms. Analysis of illustrative cases.

400H. **Honors Work**
Spring. 1 to 15 credits. Approval of department.
Investigates models, concepts and research findings of particular significance to effective decision-making in administration of marketing and transportation systems.

409. **Field Studies in Business**
Fall, Winter, Spring. Summer. Variable credit. May re-enroll for a maximum of 8 credits. Majors and approval of department.
Planned program of independent research or observation, study, and work in selected business firms. Designed to supplement classroom study in such a way as to make maximum contribution to student's total educational experience.