

Biology 397 (3)—Neuroendocrinology

Prerequisites: Biology 220, junior standing and permission of the instructor. The study of the interaction between the nervous system and the endocrine system, with special reference to regulation and communication in the mammal. Topics may include neuroendocrine regulation of development, the role of the adrenal axis in stress, metabolic regulation of reproduction, or biological rhythms. May be repeated for degree credit with permission and if the topics are different. *I'Anson.*

Spring

Biology 398 (3)—Selected Topics in Ecology and Evolution

Prerequisites: Biology 220, junior standing and permission of the instructor. Topics include ecology, behavior, evolution, and natural history of selected taxonomic groups. May be repeated for degree credit with permission and if the topics are different. *Staff.*

Offered when interest is expressed and departmental resources permit.

Biology 401 (1), 402 (2), 403 (3)—Directed Individual Study

Prerequisite: Permission of the instructor. Reading in the primary research literature on a selected topic under the direction of a faculty member, by prior mutual agreement and according to departmental guidelines (available from biology faculty). May be repeated for degree credit with permission and if the topics are different. No more than six credit hours of work at the 400 level may apply toward the major. *Staff.*

Biology 422 (2), 423 (3), 424 (4)—Directed Individual Research

Prerequisite: Permission of the instructor. Each student conducts primary research in partnership with a faculty member, by prior mutual agreement and according to departmental guidelines (available from biology faculty). Consult the department Web page or individual faculty for a description of current research areas. May be repeated for degree credit with permission and if the topics are different. No more than six credit hours of work at the 400 level may apply toward the major. *Staff.*

Biology 442 (2)—Honors Thesis Proposal

Prerequisite: Honors candidacy. Writing a proposal for honors thesis research, including a clear statement of the problem being studied, a literature review, and a feasible, detailed plan for the research. Taken no later than the winter term of the junior year. No more than six credit hours of work at the 400 level may apply toward the major. *Staff.*

Biology 492 (2), 493 (3), 494 (4), 495 (5), 496 (6)—Honors Thesis

Prerequisites: Honors candidacy and Biology 442. Laboratory and/or field research resulting in an honors thesis. A total of six credits is required. No more than six credit hours of work at the 400 level may apply toward the major. *Staff.*

BUSINESS ADMINISTRATION (BUS)

PROFESSORS CLINE, DEAN, KESTER, PIRKLE
VISITING PROFESSOR CULPEPPER
ASSOCIATE PROFESSORS GARVIS, BALLENGER,
BOWER, HOOVER, SCHWARTZ, STRAUGHAN
VISITING ASSOCIATE PROFESSOR GIBBS
ASSISTANT PROFESSOR REITER

MAJOR

A major in **business administration** leading to a Bachelor of Science with Special Attainments in Commerce requires at least 50 credits total, including at least 24 credits in business administration and 26 credits not in business administration, as follows:

1. Accounting 201, 202; Business Administration 205, 211, 217, 221; Economics 101 and 102; Interdepartmental 201, 202
2. Business Administration 340 or 375
3. *International Business*: one course chosen from Accounting 396; Business Administration 305, 357, 359, 364, 390; Economics 280, 370, 371
4. *Information Systems*: one course chosen from Accounting 310; Business Administration 306, 310, 315, 320, 325
5. Business Administration electives: at least nine credits, chosen from Business Administration courses numbered 300 or above but excluding Business Administration 391. Credits awarded in these courses that also satisfy requirements 3 and 4 may be counted in this category.
6. Non-Business Administration electives: at least nine credits, including the courses from requirements 3 and 4, chosen from Accounting courses above 202; Economics courses above 202; Journalism 225, 340 371, 372, 377.

HONORS: An Honors Program in business administration is offered for qualified students; see department head for details.

Business Administration 101 (3)—Business in a Changing World

This course provides an overview of the field of management and its relationship to the changing business environment. Topics include financial analysis, marketing, production/operations, human resource management, business ethics, leadership and managerial psychology, and personal career management. *Staff.*

Offered when interest is expressed and departmental resources permit.

Business Administration 110 (3)—Leadership Themes in Classic Films

This course is based on the fundamental belief that there is much to be learned about management and leadership from mankind's greatest texts and films. We examine leaders in context—their qualities and courses of action reveal individuals at the iron moment of decision, going beyond illustrations and models to look at perennially important issues of management and leadership from a more theoretical perspective. To achieve this objective, we watch a diverse selection of classic films such as *The Bridge on the River Kwai*, *Norma Rae*, *Citizen Kane*, and *Twelve Angry Men*. *Dean*.

Spring

Business Administration 195 (3)—Selected Topics in Business Administration

Topical coverage of areas in management, based on the interests of the instructor and students. Topics vary from year to year and are announced prior to registration. May be repeated for degree credit with permission and if the topics are different. *Staff*.

Offered when interest is expressed and departmental resources permit.

Business Administration 205 (3)—Private Law in a Market Economy

Prerequisite: Junior standing. This course studies the law governing the relations between individuals in day-to-day commerce. The emphasis is on how individuals and firms organize their voluntary agreements in markets, a process governed by the law of contracts. The course covers this process ranging from the sale of goods, through the securing and payment of debt, to the creation of large corporations. Both the Common Law and the Uniform Commercial Code are analyzed. The course accents procedural and managerial techniques and stresses economic and ethical issues. Writing assignments apply legal theories to literary masterworks and hypothetical situations. *Culpepper*.

Fall, Winter

Business Administration 211 (3)—Marketing Management

Prerequisites: Economics 101 and 102, Accounting 201; Interdepartmental 202 or equivalent, and junior standing. An exploration of strategic marketing. The focus of the course is on the analysis of a firm's current marketing strengths and weaknesses and the development of a strategic plan to capitalize on key opportunities. Topics include environmental analysis, market segmentation, targeting and positioning, and management of the marketing mix. Throughout the course, significant attention is devoted to international issues, the interrelationships between marketing and other disciplines, and the role of ethically and socially responsible marketing. *Bower, Straughan*.

Fall, Winter

Business Administration 217 (3)—Management and Organizations

Prerequisite: Junior standing. A study of management in modern organizations. This course examines the factors which influence individual, group, and firm behavior in the context of the workplace. Topics covered include individual differences, motivation, leadership, business ethics, group behavior, decision making, and organizational design and change. *Dean*.

Fall, Winter

Business Administration 221 (3)—Managerial Finance

Prerequisites: Economics 101 and 102; Accounting 201 and 202; Interdepartmental 202 or equivalent; and junior standing. A study of finance from a managerial perspective emphasizing the primary goal of the firm as stockholder wealth maximization. Emphasis is on decisions relating to the acquisition of assets and funds and internal management—financial analysis, planning and control, working capital management, capital budgeting, sources and forms of long-term financing, financial structure and the cost of capital, and valuation. *Hoover, Kester, Schwartz, Gibbs*.

Fall, Winter

SEMINARS IN BUSINESS ADMINISTRATION—The following courses are offered from time to time when there is interest expressed and departmental resources permit. *All courses in this series require the permission of the instructor and are open only to juniors and seniors.* Any additional prerequisites are indicated.

Business Administration 301 (3)—Seminar in Organizational Behavior

Prerequisite: Business Administration 217.

Business Administration 302 (3)—Seminar in Finance

Prerequisite: Business Administration 221.

Business Administration 303 (3)—Seminar in Marketing

Prerequisite: Business Administration 211.

Business Administration 304 (3)—Seminar in Management**Business Administration 305 (3)—Seminar in International Business****Business Administration 306 (3)—Seminar in Management Information Systems**

Business Administration 310 (3)—Management Information Systems

Prerequisite: *Junior standing.* The objective is to build an understanding of the value and uses of information systems for business operations, management decision making, and strategic advantage. Topics include basic systems concepts and major roles of information systems; computer, telecommunications, and database management concepts; management issues in the implementation of information systems, including international, security, and ethical considerations. *Ballenger.*

Fall, Winter

Business Administration 315 (3)—Database Management for Business

Not open to students who have received credit for Computer Science 317. Prerequisite: *At least junior standing.* An introduction to the theories, concepts, features, and capabilities of database management systems in a business environment. This course provides a greater understanding of how to design, develop and access database-driven business applications and emphasizes the use of database-management systems in real-world business settings and how this technology can be applied effectively to solve business problems. In this project-oriented course, students acquire the skills to document, design, create, test, and access a fully functional Oracle business database application. No prior programming or application development experience is assumed. *Ballenger.*

Winter

Business Administration 320 (3)—E-Commerce Management

Prerequisites: *Economics 101 and 102 and at least junior standing.* A study of the developing area of e-commerce. This course examines entrepreneurial, strategic, and legal aspects of using the Internet for business purposes. Emphasis is on a managerial perspective, rather than a technical perspective, of e-commerce. Topics include Internet infrastructure, innovation, change, competition, intellectual property, and privacy. Case studies are used extensively, and students prepare written and oral case discussions and present collaborative research projects. *Garvis.*

Offered when interest is expressed and departmental resources permit.

Business Administration 325 (3)—E-Commerce Development

Prerequisite: *At least junior standing.* An introduction to the benefits, capabilities and related information technologies which comprise the current state of e-commerce. This course provides a greater understanding of how to design, develop and implement e-commerce transaction-processing applications, such as dynamic Web page generation, interactive database updates, and virtual shopping carts. In this project-oriented course, students acquire the skills to design, create, test, and debug a fully functional, Web-based transaction processing e-commerce application. No prior programming or application development experience is assumed. *Ballenger.*

Spring

Business Administration 330 (3)—Global Human-Resource Management

Prerequisite: *Business Administration 217.* Human-resource management (HRM) is concerned with how to best attract, select, develop, and retain employees in organizations. This course examines HRM in the global context. Topics include employee selection, training, performance management, compensation, health, safety, and security, and termination. We focus on designing HRM practices in the context of the global social, legal, and technological environments. *Dean.*

Fall, Winter

Business Administration 340 (3)—Entrepreneurship and Small Business Management

Prerequisites: *Business Administration 211 and 221 or permission of the instructor.* A study of entrepreneurs, creation of new ventures, and the management of smaller enterprises. Emphasis is on the characteristics of successful entrepreneurs, identification and analysis of opportunities for new ventures, special legal and tax considerations, acquisition of capital, and the traditional requirements of successful management as they apply to smaller enterprises. Extensive use is made of case studies and a major research/case analysis project involving a potential or actual business is required. *Pirkle.*

Fall, Winter

Business Administration 345 (Interdepartmental 345) (3)—Business Ethics

An examination of the moral and ethical issues associated with management policy and executive decisions. The course examines the basic approaches to moral reasoning, macro-moral issues concerning the justice of economic systems, and micro-moral issues such as the following: conflict of interest, whistle blowing, discrimination in employment, product safety, environment, and advertising. *Cooper.*

Fall

Business Administration 350 (3)—Negotiation and Dispute Resolution in a Business Environment

Prerequisite: *Business Administration 205 or permission of the instructor.* This course is designed to give students the abilities to negotiate successfully in a commercial environment and to create business solutions when a problem or dispute arises. Lectures, written materials, group projects, video, and role-play are utilized to explore the various theories of negotiation and types of dispute resolution, and to equip students with practical skills for forming and preserving business relationships and resolving business disputes as they occur. *Culpepper.*

Spring

Business Administration 354 (3)—Advanced Business Law

Prerequisite: *Business Administration 205 and senior standing.* A survey of specialized legal relationships, such as negotiable instruments and corporations, and an introduction to legal thought at the philosophical and policy level. *Staff.*

Offered when interest is expressed and departmental resources permit.

Business Administration 355 (3)—Cases in Corporate Finance

Prerequisite: Business Administration 221. This course focuses on applied corporate finance strategy, including business valuation, mergers, acquisitions and restructuring, making intensive use of the case method. Classroom participation and group presentations are emphasized. *Kester.*

Fall

Business Administration 356 (3)—Commercial Bank Lending

Prerequisite: Business Administration 221. This course focuses upon short-term and long-term lending decisions made by commercial banks. Topics include credit analysis, loan structuring, seasonal and revolving lines of credit, term loans, leasing, and the evaluation of a borrower's debt capacity. The course is interactive and makes intensive use of the case method, requiring evaluation of alternatives and decision making. The cases are discussed from the viewpoints of both lenders and borrowers. *Kester.*

Spring

Business Administration 357 (3)—Multinational Business Finance

Prerequisite: Business Administration 221. A study of the critical aspects of managerial finance in a multinational setting, covering both theoretical and practical issues. Emphasis is placed on identifying the unique risk-return opportunities faced by corporations that maintain business units across national borders. Topics included are foreign exchange and exchange rate determination, international capital markets, the environment of multinational corporate finance, risk management, and cross-border investment decisions. Text, readings, and projects. *Hoover.*

Spring

Business Administration 359 (3)—International Production/Operations Business Administration

Prerequisite: Interdepartmental 202. A study of the production/operations function in manufacturing and service companies with emphasis on systems and processes necessary to compete in global markets. Case analysis and site visits are used to examine topics such as operations strategy, total quality management, statistical process control, just-in-time systems, and project management. *Garvis.*

Offered when interest is expressed and departmental resources permit.

Business Administration 364 (3)—Cross-Cultural Issues in Marketing

Prerequisite: Either Anthropology 101, Anthropology 210, Business Administration 211, or Business Administration 217. A study of cultural theories and their effects on a variety of international management and international marketing practices. The course uses extensive readings and discussions of various cross-cultural theories and methods of inquiry from the social science, general management, marketing, and consumer/organizational

behavior literature. Emphasis is placed on understanding both the theoretical dimensions of culture and the impact these dimensions have on a variety of business activities. Students develop and lead seminar sessions and develop an in-depth research proposal applying their understanding of cultural theories to some unexplored phenomena within marketing, or another functional area of management. Readings, discussion, written project, and presentation. *Straughan.*

Fall 2007, Winter 2009 in alternating years

Business Administration 365 (3)—Investments

Prerequisites: Interdepartmental 202 and Business Administration 221 or permission of the instructor. A study of investments and investment management from a practical and theoretical point of view, including the institutional and economic environment relevant to common stocks, preferred stocks, bonds, puts, calls, and commodity future contracts. These assets are studied in terms of the markets in which they are traded, governing regulations, taxes, valuation, risk, characteristic line, and construction of a portfolio. Capital market theory and the Markowitz portfolio model are explored. Text, readings, and projects. *Hoover, Schwartz.*

Fall, Winter

Business Administration 370 (3)—Integrated Marketing Communications

Prerequisites: At least junior standing and permission of the instructor. Nature and contributions of the elements of marketing communications (e.g., advertising, sales promotions, the Web) in creating brand equity and generating demand stimulation. A project-oriented course with an emphasis on the strategic application of concepts related to integration and organization of promotional effort to facilitate communication programs for products and/or services. *Bower.*

Winter

Business Administration 375 (3)—Strategic Management

Prerequisite: Senior standing. A capstone course designed to expose students to a strategic perspective on global issues that impact the firm. Integrative in that it draws on concepts from functional disciplines (e.g., finance, marketing, accounting) in the diagnosis, analysis, and resolution of complex business situations. Practical problem-solving skills are emphasized. Case analysis and/or computer simulation are used extensively in oral presentations and written cases. *Pirkle, Garvis, Reiter, Gibbs.*

Fall, Winter

Business Administration 390, 391 (3-3 or 3,3)—Supervised Study Abroad

Prerequisites: Permission of the instructor, other prerequisites as specified by the instructor, and approval of the International Education Committee. These upper-level courses cover topics of current interest in business administration for which international travel provides a unique opportunity for enhancing understanding. Emphasis changes from year to year and is announced well in advance of registration. Only Business Administration 390 may be used for credit in the business administration major. When these courses are linked, Business Administration 391 must be completed satisfactorily to receive any credit for Business Administration 390. *Staff.*

Spring (when interest is expressed and departmental resources permit)

Business Administration 401 (1), 402 (2)—Directed Individual Study

The objective is to permit students to follow a course of directed study in some field of management not presented in other courses or to emphasize a particular field of interest. Credits may not be used toward the major requirements in business administration. *Staff.*

Business Administration 403 (3), 406 (6)—Directed Individual Study

Prerequisites: Senior standing and permission of the instructor. The objective is to permit students to follow a course of directed study in some field of management not presented in other courses or to emphasize a particular field of interest. *Staff.*

Business Administration 453 (3)—Internship

Prerequisites: Junior standing, Williams School major, and permission of the department. A limited number of off-campus, summer positions open to Williams School majors. Selection is competitive, based on academic performance and personal interviews. Each intern is closely supervised by a member of the business administration department. Students register for the credits as part of a normal class load for the following fall term, during which they write an in-depth research paper related to their intern experiences. *Pirkle.*

Fall

Business Administration 493 (3-3)—Honors Thesis

Fall-Winter

CHEMISTRY (CHEM)

Bayly Foundation

PROFESSOR PLEVA
ASSOCIATE PROFESSORS **ALTY**, DESJARDINS,
FRANCE, TUCHLER, UFFELMAN
ASSISTANT PROFESSOR LaRIVIERE
INSTRUCTOR ABRY
VISITING PROFESSOR SETTLE

MAJORS

A student may complete only one of the majors listed in the Department of Chemistry.

The major in **chemistry** leading to a Bachelor of Arts degree requires completion of 44 credits as follows:

1. Chemistry 111, 112, 242, 243, 250, 341; Physics 111, 112, 113, 114
2. One course from each of the following three groups:
Chemistry 241 or 241S
Chemistry 252 or 254
Chemistry 260 or 261
3. Six additional credits chosen from biology, chemistry (numbered 200 or above), geology or physics (numbered 200 or above).

Additional courses required as prerequisites for completion of the above include Mathematics 101 and 102, or their equivalents.

The major in **chemistry** leading to a Bachelor of Science degree requires completion of at least 52 credits in the sciences and mathematics including the following:

1. Chemistry 111 and 112, 242, 243, 250, 262, 266, 341; Mathematics 221; Physics 111, 112, 113, 114
2. One course from each of the following three groups:
Chemistry 241 or 241S
Chemistry 252 or 254
Chemistry 260 or 261
3. Two courses chosen from Chemistry 311, 347, 350, and 365.

Mathematics 221 must be completed by the end of the sophomore year; Chemistry 262 must be completed by the end of the junior year. Chemistry 254 and Mathematics 222 are recommended. Additional courses required as prerequisites for completion of the above include Mathematics 101 and 102, or their equivalents.

The major in **biochemistry** leading to a Bachelor of Science degree requires completion of 57 credits as follows:

1. Biology 111 and 113; Chemistry 111 and 112, 241 or 241S, 242, 243, 250, 254, 260, 341, 342, 343, 344; Mathematics 101 and 102; Physics 111, 112, 113, 114