MGT 468. Staffing, Succession Planning and HR Metrics. 3 credits.
This course provides a study of staffing, such as how to identify the best candidates for a given job and how to identify and prepare future managers. Topics include planning, recruitment, selection, socialization of new employees, development of current employees and succession planning. Additionally, there is an emphasis on the use of metrics – analytical tools that can be used to improve the quality of managerial decision-making about human capital. Prerequisite: MGT 365.

MGT 472. Venture Creation. 3 credits.
The formulation, financing and operation of new ventures by individual entrepreneurs and entrepreneurial teams will be explored. The course will include a group term project designed to give the students clinical experience in the venture creation process. Prerequisites: COB 300 and MGT 372 or permission of the instructor.

MGT 480. Organization Theory and Design. 3 credits.
Examines the theory and research underlying the design of complex organizations. Takes a macro approach to the study of organizations, placing particular emphasis upon the interaction between an organization and its environment and the impact that the environment has on organizational design, structure and processes. Prerequisites: MGT 340, MGT 365, MGT 390 and senior standing (90 hours).

MGT 481. Negotiation and Dispute Resolution. 3 credits.
The purpose of this course is to develop an understanding and effective improvement of participants’ skills in the areas of both business and interpersonal negotiations. Through case-based exercises, attention will be given to various strategies for negotiation including distributive, integrative, intra-organizational and multi-lateral bargaining. Additional applications include how negotiation skills can serve as tools for conflict resolution in the workplace and broader life experiences. Prerequisites: COB 300 and senior standing (90 hours).

MGT 490. Special Studies in Management. 1-3 credits.
Designed to give capable students in management an opportunity to complete independent study under faculty supervision. Prerequisites: Management major and senior standing (90 hours); recommendation of the instructor and written permission of the instructor prior to registration.

MGT 494. Management Internship. 3 credits.
A course providing an opportunity to work in and with local industry to gain insight into the real side of modern management. Prerequisites: Management major, senior standing (90 hours); recommendation of the director prior to registration.

MGT 495. Human Resources Internship. 3 credits.
Internship in the area of human resource management as a generalist or in a specific area. Prerequisites: Management major, senior standing (90 hours), MGT 365, MGT 340 or MGT 390, minimum cumulative GPA of 2.800, recommendation of the instructor and written permission of the program director prior to registration.

MKTG 380. Principles of Marketing. 3 credits.
Deals with fundamentals involved in the marketing process; concerned with the functions, institutions and channels used to distribute goods and services from producer to consumer. Prerequisites: Junior standing and a cumulative 2.0 grade point average in all courses taken at JMU.

MKTG 384. Integrated Marketing Communications. 3 credits.
Integrated marketing communications includes advertising, sales promotions, packaging, public relations, publicity, personal selling, direct marketing and event sponsorship. Students will be involved in creating, planning, implementing and evaluating client-oriented projects by developing an integrated marketing communication campaign. Prerequisites or corequisites: COB 300 or MKTG 380 and admission to the marketing major.

MKTG 385. Consumer Behavior. 3 credits.
Deals with the behavioral science concepts of individual and group behavior of consumers. Stresses the application of consumer behavior research to marketing management. Prerequisite or corequisite: COB 300 or MKTG 380.

MKTG 386. Services Marketing. 3 credits.
Application of marketing principles to the services sector. The course focuses on review of customer demand for and assessment of services; the employee/customer interface; services operation management; review of the services marketing mix; and development of marketing plans for service organizations. Prerequisite: COB 300 or MKTG 380.

MKTG 388. Retail Marketing. 3 credits.
Study of the institutions of retailing, retailing research, selection of store location and layout, retail organizational structure, and merchandise planning and management. Retail store image, promotion, retail pricing, retail strategy and retail trends will be evaluated. Prerequisite: COB 300 or MKTG 380.

MKTG 405. Survey Research. 3 credits.
This course covers the techniques and principles, skills and activities that are required to conduct an effective survey project. The course will cover survey planning, survey methods, sampling, survey instrument design, data collection and analysis, and survey reporting. Survey findings are linked to future marketing decision making. Prerequisite: COB 300 or MKTG 380.

MKTG 420. Data Mining. 3 credits.
Examines database applications by which marketers can build a long-term, interactive relationship between their product/service and their customers. Study of the information-driven marketing process that enables marketers to develop, test, implement, measure and modify customized marketing programs and strategies. Prerequisites: COB 300 and MKTG 482.

MKTG 430. Professional Selling. 3 credits.
Provides an understanding of many aspects of professional selling including preparing for selling, selling techniques and the role of selling in our society. Prerequisite: COB 300 or MKTG 380.

MKTG 440. Retail Strategy and Buying. 3 credits.
This course explores merchandising as a major element in the marketing of consumer goods. The student will learn the software tools and formulas for merchandising strategy in a computer mediated environment and the basics of market centers and global sourcing. Prerequisite: COB 300 or MKTG 380.

MKTG 450. Business Marketing. 3 credits.
An analysis of the policies and procedures in marketing to business buyers. The course provides emphasis on special problems connected with the segmentation and target marketing, purchase, distribution, promotion and development of business-to-business goods and services. Prerequisite: COB 300 or MKTG 380. Corequisite: MKTG 465.

MKTG 460. Global Marketing. 3 credits.
Examines marketing in international environments, including foreign entry, local marketing in individual countries and global or standardized marketing across many countries. Emphasis is placed on cultural, economic and strategic variables in deciding how to enter and compete in various markets. Prerequisite: COB 300 or MKTG 380.

MKTG 465. CRM Technology for Sales Professionals. 3 credits.
The objective of this course is to introduce students to customer relationship management (CRM) technologies used in professional selling. Students will investigate sources of customer data, data management technology, and the use of customer information for professional selling. The course develops technology skills applicable in carrying out sales strategies. Prerequisite: MKTG 430. Corequisite: MKTG 450.

MKTG 466. Advanced Professional Selling. 3 credits.
The purpose of this course is to build on the selling skills first learned in MKTG 430. It will focus on enhancing existing skills and learning new ones in order to even better prepare students for a successful career in sales. In addition, students may be selected to compete in regional or national sales competition during the summer. Prerequisite: MKTG 430.

MKTG 470. Strategic Internet Marketing. 3 credits.
Studies the culture and demographics of the Internet and examines online business strategies. Students will learn the hardware and software tools necessary for Internet commerce, identify appropriate target segments, develop product opportunities, price structures and distribution channels over the Internet and execute marketing strategy in computer mediated environments. Prerequisites: COB 300 or MKTG 380 and MKTG 384 or permission of the instructor.

http://www.jmu.edu/catalog/15
MKTG 477. Internet Marketing Practicum. 3 credits.
With an applied focus, this course introduces students to some of the most important and fastest growing sectors in online marketing. Students apply marketing theories in a uniquely applied manner as they become active learners involved in an online marketing campaign, facing real pressures similar to those in the professional workplace (i.e., account management, client relationships, financial constraints, market competition, time limitations, technology, etc.). Student teams will work with actual clients on online marketing campaigns. Throughout their campaigns, students continually make finance, advertising and marketing decisions. Students gather real world data using online marketing dashboards to gain a strong understanding of real market conditions. Students experience traditional advertising concepts such as copy writing, cost per thousand (CPM), return on investment, as well as online marketing concepts such as click-through-rate (CTR), cost-per-click (CPC), conversion rates, landing page strategies, and optimization techniques. Prerequisites: MKTG 470 and permission of the instructor.

MKTG 480. Product Development and Management. 3 credits.
The process of developing new products will be developed and explored. The marketing tasks which are unique to this operation will be investigated. An understanding of the marketing management of products throughout their life cycles will complete the course. Prerequisite: COB 300 or MKTG 380 or permission of the instructor.

MKTG 482. Marketing Analytics. 3 credits.
This course focuses on the use of information technology and marketing metrics to increase marketing productivity. Students learn how to evaluate marketing strategies and performance using database queries and statistical analysis. Information technologies are applied in market segmentation and target marketing, lifetime value analysis and RFM (recency, frequency and monetary value) analysis. Prerequisites: COB 360 or MKTG 380 and admission to the marketing major.

MKTG 485. Marketing Management. 3 credits.
Case studies are used to develop analytical and decision-making skills. Knowledge gained from previous course work is applied to actual circumstances faced by marketing managers in private, public, profit and not-for-profit organizations. Extensive preparation of case materials outside of class provides the basis for case presentations and discussion of case situations in class. Prerequisites: COB 300, MKTG 384, MKTG 385 and senior standing.

MKTG 490. Special Studies in Marketing. 1-3 credits.
Designed to give capable students in marketing an opportunity to complete independent study under faculty supervision. Prerequisites: GPA of 2.8, instructor recommendation and director approval prior to registration.

MKTG 494. Marketing Internship. 3-6 credits.
A course providing an opportunity to work in and deal with industry to gain insight into the realities of modern business. Prerequisites: COB 300 or MKTG 380, minimum cumulative GPA of 2.80, senior standing, recommendation of the internship coordinator and approval of the director prior to registration.

MKTG 498. Special Topics in Marketing. 3 credits.
This course is designed to allow explorations of areas of current topical concern or to exploit special situations. Course content will vary. For current course content consult your adviser. Prerequisite: Permission of the instructor.

MKTG 499. Honors. 6 credits.
Year course. See catalog section “Graduation with Honors.”

Materials Science
MATS/PHYS 337. Solid State Physics. 3 credits.
A study of the forces between atoms, crystal structure, lattice vibrations and thermal properties of solids, free electron theory of metals, band theory of solids, semiconductors and dielectrics. Prerequisite: PHYS 270 or consent of the instructor.

MATS/CHM/PHYS 375. An Introduction to Materials Science. 3 credits.
An introduction to materials science with emphasis on general properties of materials. Topics will include crystal structure, extended and point defects, and mechanical, electrical, thermal and magnetic properties of metals, ceramics, electronic materials, composites and organic materials. Prerequisites: CHEM 131, PHYS 150 or PHYS 250, ISAT 212 or permission of the instructor.

MATS/PHYS 381. Materials Characterization (Lecture/Lab Course). 3 credits.
A review of the common analytical techniques used in materials science related industries today, including the evaluation of electrical, optical, structural and mechanical properties. Typical techniques may include Hall Effect, scanning probe microscopy, scanning electron microscopy, ellipsometry and x-ray diffraction. Prerequisites: MATS/PHYS 275, MATS/ISAT 431 or MATS/GEOL 395.

MATS 382. Materials Microfabrication Laboratory. 3 credits.
A materials processing course that examines the design and fabrication of micro- and nano-devices using standard technologies and new lithography techniques. Topics will include laboratory safety and protocol, substrate cleaning, thermal oxidation, photolithography, diffusion, metallization, process integration, and device testing. Prerequisite: MATS 381 or permission of the instructor.

MATS/GEOL 395. Geologic Perspectives in Materials Science. 3 credits.
A one-semester course which emphasizes the commonalities between the geological sciences and materials science. Course includes topics from mineralogy, crystallography, petrology and structural geology, which are also important in metallurgy and ceramics. Prerequisites: An introductory course in any physical science or integrated science and technology (i.e., GEOL 110, CHEM 131, PHYS 140 or ISAT 141) and at least one additional advanced course in the major.

MATS/GEOL 398. X-ray Characterization of Solid Materials. 3 credits.
Covers fundamental principles and theory behind two powerful, X-ray based technologies: X-ray Diffraction and Energy Dispersive Analysis of X-rays (EDS). Students will collect and analyze data from a single crystal Gandolfi X-ray camera, automated powder diffraction system (focusing goniometer), and EDAX system (EDS). Prerequisites: GEOL 280, MATS/CHM/PHYS 275 or ISAT 300.

MATS/ISAT 430. Materials Science in Manufacturing. 3 credits.
This course is the study of engineering materials used in the fabrication of products including metals, polymers, ceramics, composites and elastomers. Topics include physical, mechanical and electrical properties of materials, elements of strength of materials, failure criteria, and materials selection. Prerequisites: ISAT 211 and ISAT 142 or permission of the instructor.

MATS/ISAT 431. Manufacturing Processes. 3 credits.
This course provides an introduction to the processes used for fabricating parts, such as machining, grinding, and casting and sheet-metal fabrication, including both traditional and nontraditional processes. Topics include interaction of materials, processing and design, economics of manufacturing, design for improved processing. Manufacturing processes for metals, plastics and composites are addressed. Prerequisite: ISAT 430 or permission of the instructor.

MATS/ISAT 432. Selection and Use of Engineering Materials. 3 credits.
This course deals with the interplay between engineering product specification, design, economics, environment, energy, materials selection, fabrication route, manufacturing cost and product service requirements. Students will be taught how to perform design projects that involve understanding of the behavior of materials and selection of materials for a specific function. Prerequisite: ISAT 211 or permission of the instructor.

MATS/ISAT 436. Micro-Nanofabrication and Applications. 3 credits.
This course examines processes used in the manufacture of microelectronic devices (VLSI integrated circuits, optoelectronic devices, flat panel displays), microelectromechanical devices (micromotors, microactuators), data storage media (magnetic and optical disks, including CDs), optical fibers and some sensors and transducers. Principles of operation of semi-conductor and other devices are also studied. Prerequisites: Junior standing in ISAT; PHYS 150, PHYS 250 or permission of the instructor.

MATS 498R. Undergraduate Materials Science Research. 1-3 credits, repeatable to 6 credits.
Research in a selected area of materials science arranged with and approved by a faculty research adviser. Prerequisites: Study proposal must be approved by research adviser and director of Center for Materials Science prior to registration.

Mathematics
MATH 103. The Nature of Mathematics. 3 credits. Offered fall and spring.
Topics such as geometry, computing, algebra, number theory, history of mathematics, logic, probability, statistics, modeling and problem solving intended to give students insight into what mathematics is, what it attempts to accomplish and how mathematicians think. May be used for general education credit.