Operations Research

OPRE 3100 Professional Development (1 semester credit hour) This course is required for all first time in college freshmen who were required to take BA 1100, in the Naveen Jindal School of Management. This course is designed to enhance the student's experience in the Naveen Jindal School of Management. Students will enhance networking skills, verbal and written communication skills, business etiquette training, and learn how to increase their human capital. Students will also work on projects geared towards career management and overall professional development as a business major. The goal of this class is to make the student a more marketable and valuable professional in the global economy. Credit cannot be received for more than one of the following: ACCT 3100, BA 3100, BCOM 3100, FIN 3100, HMGT 3100, IMS 3100, ITSS 3100, MKT 3100, OBHR 3100, OPRE 3100, ACCT 3200, BA 3200, BCOM 3200, FIN 3200, HMGT 3200, IMS 3200, ITSS 3200, MKT 3200, OBHR 3200 or OPRE 3200. Prerequisite: BA 1100. (1-0) S

OPRE 3200 Introduction to Business and Professional Development (2 semester credit hours) This course is required for all students in their first semester majoring in the Naveen Jindal School of Management who were not required to take BA1100. This course will enhance the student's experience in the Naveen Jindal School of Management, introduce them to the professional and communication expectations of their field, and make them a more marketable and valuable professional in the global economy. Credit cannot be received for more than one of the following: ACCT 3100, BA 3100, BCOM 3100, FIN 3100, HMGT 3100, IMS 3100, ITSS 3100, MKT 3100, OBHR 3100, OPRE 3100, ACCT 3200, BA 3200, BCOM 3200, FIN 3200, HMGT 3200, IMS 3200, ITSS 3200, MKT 3200, OBHR 3200 or OPRE 3200. (2-0) S

OPRE 3310 Operations Management (3 semester credit hours) This course discusses applications of operations research methods to production problems and processes in the business firm with emphasis on forecasting, production planning, and production control techniques. Prerequisite: MATH 1325 or MATH 2413 or MATH 2417. Prerequisite or Corequisite: STAT 3360 or OPRE 3360. (3-0) S

OPRE 3311 Introduction to Programming (3 semester credit hours) This course introduces students to the fundamental concepts of programming. Students will also be introduced to the object-oriented paradigm. Topics include data types, control structures, objects, classes, iterations, functions, and arrays as they relate to developing business applications. In this course students will learn the mechanics of running, testing, and debugging programs. (Same as ITSS 3311) (3-0) Y

OPRE 3312 Object-Oriented Programming (3 semester credit hours) Business application development using an object-oriented programming language. Topics include the fundamentals of programming for web-based systems, and object-oriented programming concepts. Prerequisites: ITSS 3311 and (MATH 1326 or MATH 2414 or MATH 2419 or OPRE 3340) and (CS 2305 or MATH 2333 or MATH 2418 or OPRE 3333). (Same as ITSS 3312) (3-0) Y

OPRE 3320 Integrated Supply Chain Management (3 semester credit hours) The course examines key players and challenges within a supply chain firm in terms of facility types, inventory and transportation options and the role of information in managing supply chains effectively and efficiently. Students will examine and learn the objectives of different players in supply chains, integration/coordination of the players, and the operations and tradeoffs in service supply chains (i.e., air/sea lines, healthcare, hotels and restaurants). Prerequisite: OPRE 3310. (3-0) S
OPRE 3330 Project Management (3 semester credit hours) The course introduces students to project management tools and techniques needed to initiate and manage a project effectively. The course will enhance the ability of students to respond to the challenges of large-scale projects so that they can be more effective as project managers. The course also examines the modern project management concepts, and models, and reviews case studies to develop practical skills necessary to be successful in the field. (3-0) S

OPRE 3333 Quantitative Business Analysis (3 semester credit hours) Provides students with the analytical tools necessary for making better management decisions. Students are introduced to mathematical techniques used to make different types of business decisions. Credit cannot be received for both courses, OPRE 3333 and MATH 2333. Prerequisite: MATH 1325 or MATH 2413 or MATH 2417. (3-0) S

OPRE 3340 Advanced Business Quantitative Methods (3 semester credit hours) This course is designed for students in business majors and focuses on strengthening analytical skills needed for addressing business problems. Mathematical concepts covered include differentiation, partial differentiation, integration, and optimization. Applications topics include model building, market equilibrium fundamentals, annuities, and the use of techniques such as Lagrange multipliers, L'Hospital's Rule, and Euler’s method, in analyzing business-oriented problems. Prerequisite: MATH 1325 or MATH 2413 or MATH 2417. (3-0) S

OPRE 3360 Managerial Methods in Decision Making Under Uncertainty (3 semester credit hours) This course introduces the concept of probability and statistics for managerial decision making. Concepts will be developed in lecture and exercises using software packages and topics including: summarizing and presenting data, probability theory, sampling, estimation, confidence intervals, hypothesis testing, regression, and ANOVA. Credit cannot be received for both courses, OPRE 3360 and STAT 3360. Prerequisite: MATH 1325 or MATH 2413 or MATH 2417. (3-0) Y

OPRE 4090 Supply Chain Management Internship (0 semester credit hours) This course is designed to further develop a student's business knowledge through appropriate developmental work experiences in a real business environment. Students are required to identify and submit specific business learning objectives (goals) at the beginning of the semester. Student performance is evaluated by the work supervisor. Credit/No Credit only. May be repeated if internships differ. Department consent required. (0-0) S

OPRE 4310 Lean and Six Sigma Processes (3 semester credit hours) This course introduces and examines Six Sigma concepts and theory of quality control in manufacturing and service operations, analysis of product design and process capability, and statistical process control. Students will develop a broad understanding of Lean and Six Sigma principles and practice, and acquire knowledge about such initiatives in manufacturing and service operations. Prerequisite: OPRE 3310. (3-0) Y

OPRE 4320 Integrated SCM Information Systems (3 semester credit hours) An introduction to the concept of an integrated supply chain management system such as SAP's Enterprise Resource Planning System. Students will: 1) learn the elements of an ERP application, 2) understand the concepts of end-to-end supply chain management, 3) define the basic master data needed to create a supply chain plan, 4) forecast demand using several statistical methods, 5) plan inventories using MRP and re-order point techniques, 6) execute the supply chain plan through the production process, and 7) view the completed inventories after production. Prerequisite: ITSS 3300. (Same as ITSS 4343) (3-0) Y

OPRE 4330 Global Logistics and Inventory Management (3 semester credit hours) This course introduces and explains the logistics concepts and systems, the related components, and managing the inventory in supply chain systems. The course also covers the planning, designing, and techniques for managing the
distribution of products and services. Prerequisites: **OPRE 3310** and (**CS 2305** or **MATH 2418** or **MATH 2333** or **OPRE 3333**) and (**MATH 1326** or **MATH 2414** or **MATH 2419** or **OPRE 3340**). (3-0) Y

**OPRE 4337** Marketing Analytics (3 semester credit hours) This course is designed for those interested in an entry-level marketing analytics position. Students will analyze data to make key marketing decisions such as which customers to target to increase profitability or which new products to introduce to build incremental business. Students will also be introduced to software products used in the analysis of sales, marketing, and distribution data. Prerequisite: **MKT 3300**. (Same as **MKT 4337**) (3-0) Y

**OPRE 4340** Purchasing, Sourcing, and Contract Management (3 semester credit hours) This course introduces and explains the purchasing and sourcing management concepts with focus on selecting, building, and managing supplier relationships. The course also covers the contract development and its management as well as building the necessary skills for effective negotiation. Prerequisites: **OPRE 3310** and (**MATH 1326** or **MATH 2414** or **MATH 2419** or **OPRE 3340**). (3-0) Y

**OPRE 4345** Retail Operations (3 semester credit hours) This course examines retail operations and the application of operations management principles to this industry. Topics include assortment planning, responsive supply chains, store execution, omni-channel retailing, technology and innovation, pricing and revenue management, impact on financial performance and sustainability. It follows industry trends to focus on how companies design and manage retail environments. (3-0) Y

**OPRE 4350** Spreadsheet Modeling and Analytics (3 semester credit hours) This course develops the ability to use quantitative methods and software (particularly spreadsheet) to build effective models with analytical views for decision making in areas such as finance and operations. This helps students to gain knowledge about specific techniques for building models to analyze data effectively. Prerequisites: (**CS 2305** or **MATH 2333** or **MATH 2418** or **OPRE 3333**) and (**OPRE 3360** or **STAT 3360**). (3-0) S

**OPRE 4353** Business Analytics (3 semester credit hours) This course will introduce various data mining analytical techniques to extract business intelligence from firms' business data for various applications, including supervised and unsupervised learning analytic techniques, association, customer segmentation, classification, customer relationship management (CRM), personalization, online recommendation systems, and web mining. Students will also be exposed to various business intelligence software such as Python, R, XLMiner, SAS Enterprise Miner, or SQL Server (depending on availability). Prerequisites: **ITSS 3312** and (**MATH 1326** or **MATH 2414** or **MATH 2419** or **OPRE 3340**) and (**CS 2305** or **MATH 2418** or **MATH 2333** or **OPRE 3333**). (Same as **ITSS 4353**) (3-0) T

**OPRE 4395** Capstone Senior Project - Supply Chain Management (3 semester credit hours) This course is intended to complement theory and to provide an in-depth, hands-on experience in all aspects of a real business project. Students will work in teams as consultants on projects of interest to industry and will be involved in specifying the problem and its solution, designing and analyzing the solution, and developing recommended solutions. The deliverables will include reports that document these steps as well as a final project report, including the challenges faced by the team. The course provides students with a unique opportunity to work in a team environment, interact with industry leaders and gain industry specific knowledge. Capstone projects are sponsored by local supply chain companies. Students will learn how to work on a consulting engagement, how to collect the necessary data for analysis and assessment and how to use the skills and knowledge gained to solve real world problems in the area of supply chain management. Prerequisites: (**BCOM 4300** or **BCOM 4350**) and **OPRE 3310** or instructor consent required. (3-0) Y

**OPRE 4V81** Individual Study in Supply Chain Management (1-3 semester credit hours) May be repeated for
credit as topics vary (9 semester credit hours maximum). Instructor consent required. ([1-3]-0) R

**OPRE 4V90** Supply Chain Management Internship (1-3 semester credit hours) This course is designed to further develop a student's business knowledge through appropriate developmental work experiences in a real business environment. Students are required to identify and submit specific business learning objectives (goals) at the beginning of the semester. At the end of the semester students must prepare an oral presentation, reflecting on the knowledge gained in the work experience. Student performance is evaluated by the work supervisor. Credit/No Credit only. May be repeated for credit (6 semester credit hours maximum). Instructor consent required. ([1-3]-0) S

**OPRE 4V91** Seminar Series in Supply Chain Management (1-3 semester credit hours) Discussion of selected topics and theories in the decision sciences. May be repeated for credit as topics vary (9 semester credit hours maximum). Instructor consent required. ([1-3]-0) R