Operations Management (OPMG)

Faculty

Carol Altom, Instructor
Caroline Beam, Clinical Assistant Professor
Jeffrey Bean, Instructor
D. James Bingham, Instructor
Bob Bivins, Instructor
Aaron Bolin, Instructor
Terry A. Bresnick, Instructor
Brandon Brown, Instructor
James Burgin, Instructor
Richard Cassady, Professor
Matthew Cilli, Instructor
Michaello Costello, Instructor
Walter DeGrange, Adjunct Assistant Professor
David DelCastillo, Instructor
David Donatelli, Instructor
Marita Ellixson, Instructor
William Eveleth, Instructor
John Flynn, Instructor
Louis F. Frisco, Instructor
Jerald Garner, Instructor
Richard Ham, Instructor
Dewey Hemphill, Instructor
Craig Henderson, Instructor
Gregory T. Hutto, Instructor
Phillip Jackson, Instructor
Neal Jefferies, Instructor
Phillip Jones, Instructor
Paula Lattanzi, Instructor
Otto J. Loewer Jr., Professor
James Lowe, Instructor
Derek Malstrom, Instructor
Scott Mason, Instructor
Moira McGlynn, Instructor
Travis G. McNeal, Instructor
Kerry D. Melton, Instructor
Kirk Michealson, Instructor
John Moores, Instructor
Adam Morris, Instructor
Jack Morris, Instructor
Leonard Nethercutt, Instructor
Emily M. Nichols, Instructor
Gregory S. Parnell, Research Professor
Kim Petrone, Instructor
Edward A. Pohl, Professor, Twenty-First Century Professorship in Engineering
Letitia Pohl, Clinical Assistant Professor
Dev Raheja, Instructor
Chase E. Rainwater, Associate Professor, John L. Imhoff Chair in Industrial Engineering
James Raynor, Instructor
Tracey Richardson, Instructor
David Rieske, Instructor
Eddie Robinson, Instructor
Amy H. Rossetti, Instructor
Manuel D. Rossetti, Professor

William Roy, Instructor
Elizabeth W. Schott, Instructor
Christopher Smith, Instructor
Scott Smith, Instructor
Eric A. Specking, Lecturer
James M. Sutton, Instructor
Rick Teague, Instructor
Cortez Ward, Instructor
Meredith Weiss, Instructor
Michael Wells, Instructor
Peggy Wells, Instructor
John A. White Jr., Distinguished Professor
Stephen Wilke, Instructor
Darron Williams, Instructor
Charles Wilson, Instructor
Nia Wright, Instructor
Mickey Yeager, Instructor
Anthony Zilinsky, Instructor
Richard Zollinger, Instructor

Also offered through Graduate Resident Centers

Gregory S. Parnell
Program Director
4207 Bell Engineering Center
479-575-3413
Email: msom@uark.edu

Operations Management Program website (http://operations-management.uark.edu)

Degree Conferred:
M.S.O.M. (OPMG)

Graduate Certificate Offered (non-degree):
Project Management (OPPM)

Master of Science in Operations Management

Degree Conferred:
M.S.O.M. (OPMG)

The Master of Science program in Operations Management is directed toward the acquisition of practical knowledge in the management of work processes, projects, and people. Areas covered include project management, quality management, economic decision-making, supply chain management, operations research, safety management, lean production and inventory control techniques, and human behavior analysis.

The operations management program is conducted at Graduate Residence Centers in Arkansas, Tennessee, and Florida, as well as at Fayetteville. Evening classes are offered in eight-week terms with five terms scheduled during an academic year. Selected courses are available online and via independent study. The operations management curriculum is aimed at the needs of working managers of technical and logistics operations, as well as managers of production, service delivery and support functions in a wide spectrum of organizations, ranging from business/industry to military, government and non-profit. The program is open to students regardless of the major they selected as an undergraduate. The subject matter is patterned after the industrial engineering curriculum but is less technical and does not require a calculus mathematics background.
Admission to the program generally follows U of A Graduate School admission policies with the following exceptions:

1. The program does not permit the use of the MAT as an entrance test to compensate for undergraduate GPAs below 3.0. The GRE and GMAT are acceptable tests, but the analytical writing score must be 4.5 or above;
2. All applicants, including those with advanced degrees, will be evaluated for admission on the basis of their first baccalaureate degree.
3. OMGT 5003 must be taken in the first term of operations management graduate study.
4. Before taking any graduate classes in the program, non-native speakers of English who do not have a conferred undergraduate degree from an accredited U.S. college or university must demonstrate minimum proficiency on one of the following tests of written English: TOEFL, IBT (26), ELPT (75) or GRE/GMAT Analytical Writing (4.5). The MSOM English Language Proficiency Policy requires Level II non-native speakers of English to complete ELAC 4043 Research Writing in the STEM fields no later than the first semester of graduate level courses. In addition to course pre-requisites, before completing 12 hours of course work toward the operations management degree, students must successfully complete the following courses (or equivalent courses or demonstrate knowledge of these subject areas acceptable to the program):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMGT 4313</td>
<td>Law and Ethics (Sp, Su, Fa)</td>
<td>3</td>
</tr>
<tr>
<td>OMGT 4323</td>
<td>Industrial Cost Analysis (Sp, Su, Fa)</td>
<td>3</td>
</tr>
<tr>
<td>OMGT 4333</td>
<td>Applied Statistics (Sp, Su, Fa)</td>
<td>3</td>
</tr>
<tr>
<td>OMGT 4853</td>
<td>Introduction to Decision Support Tools in OMGT</td>
<td>3</td>
</tr>
</tbody>
</table>

These courses are offered at the undergraduate level and cannot be applied toward the requirements for a Master of Science in Operations Management degree.

To fulfill requirements for the M.S.O.M. degree, a student must earn a total of 30 semester hours credit in the program. Of these hours, 12 hours consist of required courses, while the remaining 18 hours are electives.

Required courses are:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMGT 5003</td>
<td>Introduction to Operations Management (Sp, Su, Fa)</td>
<td>3</td>
</tr>
<tr>
<td>OMGT 5783</td>
<td>Project Management for Operations Managers (Irregular)</td>
<td>3</td>
</tr>
<tr>
<td>OMGT 5623</td>
<td>Strategic Management (Irregular)</td>
<td>3</td>
</tr>
<tr>
<td>or OMGT 5873 Organizing for Change (Irregular)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OMGT 5123</td>
<td>Finance for Operations Managers (Irregular)</td>
<td>3</td>
</tr>
<tr>
<td>or OMGT 5463 Economic Decision Making (Irregular)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If a core course requirement offers a choice between two options, only one can be counted as the required course. Required courses must be taken in the first 18 hours of graduate coursework and be completed with a grade of "B" or better. Students who earn a "C" or lower in a required course may repeat the course only once. Failure to earn a "B" or better in any of the four required courses will result in dismissal from the program.

A minimum grade-point average of 3.0 (A = 4.0), calculated from the University of Arkansas graduate courses in this curriculum, must be met as a graduation requirement. Please note that if a student must retake a course to meet the grade requirements of this program, both the original grade and the retaken grade will count in the calculation of the GPA for graduation purposes.

While a thesis is not required, upon approval of the program director students may take up to six thesis hours to be applied toward the 30 semester hours required for degree completion. The six hours of thesis must be completed on the Fayetteville campus.

Students should also be aware of Graduate School requirements with regard to master's degrees (http://catalog.uark.edu/graduatecatalog/degreerequirements/#mastersdegreereqtext).

**Graduate Certificate in Project Management**

Admission to the Graduate Certificate program generally follows U of A Graduate School admission policies with the following exceptions:

1. All applicants, including those with advanced degrees, will be evaluated for admission on the basis of their first baccalaureate degree.
2. Students may be eligible for admission by special consideration if the GPA is below 3.0 but above 2.5.
3. Before taking any graduate classes in the program, non-native speakers of English who do not have a conferred undergraduate degree from an accredited U.S. college or university must demonstrate minimum proficiency on one of the following tests of written English: TOEFL, IBT (26), ELPT (75) or GRE/GMAT Analytical Writing (4.5). The English Language Proficiency Policy for the Master of Science in Operations Management requires Level II non-native speakers of English to complete ELAC 4043 Research Writing in the STEM Fields (Sp, Su, Fa) no later than the first semester of graduate level courses.

Former students or alumni of the Master of Science in Operations Management program may use six credit hours (two courses) from the M.S.O.M. program toward equivalent Project Management Certificate courses. If an alumnus has completed all possible combination of courses for the Project Management Certificate, the student may petition to take one additional course chosen by the program to complete the Project Management Graduate Certificate.

Current M.S.O.M. students who are concurrently accepted into the Project Management Certificate program may use all applicable courses for both the M.S.O.M. degree and the Project Management Certificate.

**Requirements for Graduate Certificate in Project Management**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMGT 5253</td>
<td>Leadership Principles and Practices (Sp, Su, Fa)</td>
<td>3</td>
</tr>
<tr>
<td>OMGT 5783</td>
<td>Project Management for Operations Managers (Irregular)</td>
<td>3</td>
</tr>
<tr>
<td>OMGT 5983</td>
<td>Advanced Project Management (Irregular)</td>
<td>3</td>
</tr>
<tr>
<td>Choose one elective:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>OMGT 5373</td>
<td>Quality Management (Irregular)</td>
<td></td>
</tr>
<tr>
<td>OMGT 5433</td>
<td>Cost Estimation Models (Irregular)</td>
<td></td>
</tr>
<tr>
<td>OMGT 5463</td>
<td>Economic Decision Making (Irregular)</td>
<td></td>
</tr>
<tr>
<td>OMGT 5873</td>
<td>Organizing for Change (Irregular)</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 12
Courses

OMGT 5003. Introduction to Operations Management (Sp, Su, Fa). 3 Hours.
Provides an overview of the functional activities necessary for the creation/delivery of goods and services. Topics covered include: productivity; strategy in a global business environment; project management; quality management; location and layout strategies; human resources management; supply chain and inventory management; material requirements planning; JIT; maintenance and reliability; and other subjects relevant to the field. Required course. Prerequisite: OMGT 4333.

OMGT 5013. Supply Chain Management for Operations Managers (Irregular). 3 Hours.
Focuses on the development and application of decision models in supply chains with emphasis on supply chain performance, cost, and metrics; demand forecasting; aggregate planning; inventory management; supply chain design and distribution; transportation modeling and analysis; supply chain coordination; the role of information technology; and sourcing decisions. Spreadsheet tools and techniques will be used to analyze supply chain performance. Prerequisite: OMGT 4333, OMGT 4853 and OMGT 5003.

A review of Human Resources Management functions as they apply in today's business setting with specific emphasis on regulatory compliance, total rewards systems, recruitment, training, and employment practices. The course is designed both for HRM professionals and for line managers/professionals who need to understand the roles and responsibilities of HR as a business partner. Prerequisite: OMGT 4313 and OMGT 5003.

OMGT 5123. Finance for Operations Managers (Irregular). 3 Hours.
Examines the scope and environment of finance for operations managers. Topics include financial markets, interest rates, financial statements, cash flows, and performance evaluation. Valuation of financial assets, using time value of money; the meaning and measurement of profit/return; capital-budgeting, cost of capital, capital structure, dividend policy, and working capital management are also covered. Required course (may substitute OMGT 5463). Prerequisite: OMGT 5003. Pre- or Corequisite: OMGT 4323 and OMGT 4853.

OMGT 5133. Operations Management in the Service Sector (Irregular). 3 Hours.
Review of the role of the operations management in the service sector, e.g., health care systems, banking, municipal services, utilities, and postal service and others. Emphasizes the principles and methodologies applicable to the solution of problems within the service industries. Prerequisite: OMGT 5003. Pre- or Corequisite: OMGT 4323 and OMGT 4853.

OMGT 5143. Strategic Issues in Human Resource Management (Irregular). 3 Hours.
Explores the concept of Strategic Human Resource Management with emphasis on effective partnering by various HR functions with all levels of management to support the large-scale, long-range goals of achieving success in the organization’s chosen markets. Internal and external impacts on and of HR in all areas will be examined. Students will analyze case studies to build on basic concepts acquired in OMGT 5113. Prerequisite: OMGT 5003, OMGT 4313, OMGT 5113 or departmental consent.

OMGT 5223. Safety and Health Standards Research (Irregular). 3 Hours.
For graduate students who seek Certified Professional or Certified Industrial Hygienist status, or both. Includes review and development of computer databases for standards, interpretations, court decisions, and field memoranda. Test equipment and procedures for determining indoor industrial aid containment PEL concentrations and industrial environment noise levels are examined. Prerequisite: OMGT 5003. Pre- or Corequisite: INEG 4223 or OMGT 5403.

The course is designed to expose students to multiple approaches to leadership in a wide variety of settings. Leadership styles, the knowledge areas and competencies expected of today’s leaders, the challenges leaders face, the historical and philosophical foundations of leadership, the relationships among leadership theory, leadership practice, and the moral-ethical aspects of leadership are among the topics covered in the course. A number of respected regional, national, and international leaders share “lessons learned” in their leadership journeys. Plus, a number of highly regarded leadership books and case studies on leadership are read and discussed. Students may not receive credit for INEG 4253 and INEG 5253/OMGT 5253. Pre- or Corequisite: OMGT 4313 or departmental consent. This course is cross-listed with INEG 5253.

Explores health care management strategies and policy development with emphasis on health insurance, Medicare, Medicaid and managed care, as well as employee health benefits. The roles of government and business in policy formulation are addressed, as are the problems of financing health care, legal and ethical considerations, current healthcare issues, and quality measures.

OMGT 5373. Quality Management (Irregular). 3 Hours.
Introduces students to quality management concepts and their use in enhancing organizational performance and profitability. History of the quality movement, its broad application in key economic sectors, and philosophical perspectives of major quality leaders will be discussed. Focus is on continuous process improvement, using data and information to guide organizational decision-making. The Six Sigma approach and associated statistical tools, supporting process improvement, are also covered. Prerequisite: OMGT 5003. Pre- or Corequisite: OMGT 4333 and OMGT 4853.

OMGT 5403. Industrial Safety and Health Administration (Irregular). 3 Hours.
Based on Federal Regulations for Occupational Safety and Health, the course examines current regulations, as well as their commonsense application. Covers various standards, such as those for material handling, personal protective equipment, toxic substances, and machine guarding. Uses case studies and real world scenarios to present topics and demonstrate their application.

OMGT 5423. Operations Management & Global Competition (Sp). 3 Hours.
Studies of principles and cases in business/industrial administration in global competition. Survey of markets, technologies, multi-national corporations, cultures, and customs. Discussion of ethics, professionalism, difference valuing, human relations skills, and other topics relevant to global practice. Pre- or Corequisite: OMGT 5003.

An examination of the methodologies for estimating and forecasting manufacturing costs. Types of cost recovery systems, work progress functions, product improvement curves, determination of hourly rates, parametric estimating systems, and the development of software for computer-assisted estimating systems. Pre- or Corequisite: OMGT 5003. Prerequisite: INEG 2513 or OMGT 4853, OMGT 4323 and OMGT 4333.

This course is cross-listed with INEG 5433.
OMGT 5443. Decision Models (Irregular). 3 Hours.
Focus on quantitative decision models for technical and managerial problems for private and public organizations. Topics include shareholder value, stakeholder value, Value-Focused Thinking, axioms of decision analysis, decision making challenges, decision traps, cognitive biases, decision processes, decision framing, influence diagrams, value hierarchy structuring, designing creative alternatives, single objective models, multiobjective additive value model, swing weights, sensitivity analysis, portfolio decision models with binary linear programming, probability elicitation, Bayes Theorem, decision trees, Monte Carlo simulation, expected value, dominance (deterministic and stochastic), tornado diagrams, value of information, risk preference, utility models, expected utility, and communicating analysis insights. Prerequisite: OMGT 5003, OMGT 4333, INEG 2313 or OMGT 4853. This course is cross-listed with INEG 5443.

OMGT 5463. Economic Decision Making (Irregular). 3 Hours.
Principles of economic analysis with emphasis upon discounted cash flow criteria for decision-making. Comparison of criteria such as rate of return, annual cost, and present worth for the evaluation of investment alternatives. Required course (may be substituted by OMGT 5123). Prerequisite: OMGT 5003, OMGT 4323 and OMGT 4853.

OMGT 5503. Maintenance Management (Irregular). 3 Hours.
Principles and practices of maintenance department organization, prevention procedures, and typical equipment problems. Includes related topics such as plant protection, preventative and plant maintenance. Pre- or Corequisite: OMGT 5003 or departmental consent. Prerequisite: OMGT 4333.

OMGT 5613. Lean Production and Inventory Control (Irregular). 3 Hours.
Defines analytical methods used to support inventory replenishment for the production of goods and services. Operational problems of production systems are examined, including objective/subjective forecasting methods, aggregate planning of work force and production under seasonal demand; and inventory models of EOQ for known and unknown demand. Supply chain management and lean manufacturing concepts are also discussed. Prerequisite: OMGT 4333 and OMGT 5003.

OMGT 5623. Strategic Management (Irregular). 3 Hours.
Examines strategic management, which is defined as the art and science of formulating, implementing, and evaluating cross-functional decisions that enable an organization to achieve its long-term objectives. Principles of strategic management will be covered in conjunction with case studies to provide opportunity for analysis and experience in applying these principles in an operations management environment. Required course. Prerequisite: OMGT 5003 and OMGT 4313.

OMGT 5633. Linkages among Technology, Economics and Societal Values (Irregular). 3 Hours.
Addresses how macro-level change is influenced by the linkages among technology, economics and societal values. Three major course initiatives: 1) Developing a conceptual model for understanding how macro-level change has occurred over history; 2) Examining recorded history in order to develop a contextual appreciation for Society’s current situation; and 3) Using statistical data to identify six overriding world trends that are likely to greatly impact society’s goal of achieving sustainable prosperity and well being in the foreseeable future. Prerequisite: Graduate standing or instructor permission. This course is cross-listed with BENG 5633.

OMGT 5653. Introduction to Data Analytics for Operations Managers (Irregular). 3 Hours.
Introduces data science and data analytics. Provides basic skill instruction in the statistical data analysis programming language R. Provides experience building and interpreting descriptive and predictive data analytics models. Provides operations managers with the skill and tools to use and understand advanced data analytics methods. Provides practice communicating those results to senior stakeholders and decision makers. Prerequisite: OMGT 5003 or departmental consent.

Surveys the mathematical models used to design and analyze operational systems. Includes linear programming models, waiting line models, computer simulation models, and management science. Students will be introduced to applications of operations research and solution methods, using spreadsheet software. Pre- or Corequisite: OMGT 5003 and OMGT 4853. Prerequisite: OMGT 4333.

OMGT 5733. Human Behavior Analysis (Irregular). 3 Hours.
Examination of the principal drivers of individual and group behavior in organizations with coverage of practical applications of concepts in organizational behavior for operations managers. In addition to group behavior and organizational processes, the course explores people management challenges that result from external pressures on stakeholders (e.g. competitive, economic, social, political, and regulatory impacts). Pre- or Corequisite: OMGT 5003 or departmental consent. Prerequisite: OMGT 4313.

OMGT 577V. Special Problems (Irregular). 1-3 Hour.
Application of previous course work knowledge to problems encountered in military base and civilian operations. Problems are proposed by students according to individual interests and needs. Used for courses in specific concentration, certificate or focus areas with parenthetical titles. Maybe used for courses in development. Prerequisite: Departmental consent. May be repeated for up to 3 hours of degree credit.

OMGT 5783. Project Management for Operations Managers (Irregular). 3 Hours.
An introduction to the Critical Path Method and Program Evaluation and Review Technique. Covers project planning and control methods; activity sequencing; time-cost trade-offs; allocation of manpower and equipment resources; scheduling activities and computer systems for PERT/GPM with emphasis on MS project. Case studies include topical issues combining methodologies and project management soft skills, such as conflict management, negotiation, presentations to stakeholders, and team building. Required course.

OMGT 5793. Risk Management (Irregular). 3 Hours.
Students will learn to apply tools to identify, assess, communicate and manage risk. Course work includes methods to identify risks, develop risk models, assess risk, and evaluate risk management options. Case studies are used to understand risk management challenges in systems development in complex organizations. Prerequisite: OMGT 5003 or EMGT 5033 or departmental consent.

OMGT 5823. Information Technology for Operations Managers (Irregular). 3 Hours.
Information Technology for the management and control of information systems and processes used in operations management. Topics covered include e-Business and e-Commerce Systems, Management Information Systems (MIS), Data Resource Management, Networking, Decision Support, Information Security, Enterprise and Global IT, and IT Strategies and Solutions for Operations Managers. Pre- or Corequisite: OMGT 5003 or departmental consent. Prerequisite: OMGT 4853.
OMGT 5833. Decision Support Application Development for Operations Management (Irregular). 3 Hours.
Students will utilize Microsoft Excel and will write programming code in Visual Basic for Applications to develop custom solutions to challenging operations management problems. Emphasis will be placed on computing productivity in a spreadsheet-based setting to develop practical, useful decision support applications and computer programs to support operations management. Assumes basic knowledge of programming. Pre- or Corequisite: OMGT 5003 or departmental consent. Prerequisite: OMGT 4853.

OMGT 5873. Organizing for Change (Irregular). 3 Hours.
Provides an overview of fundamental management functions, organizational decision-making authority, structures and controls to support managing change. Topics include leadership, strategy and ethical perspectives on change management. Pre- or Corequisite: OMGT 5003 or departmental consent.

Course focuses on the fundamentals of UAS operations and the applications of UAS systems in research, government and business applications. Modules covers government compliance, licensing/certification requirements, University Policy and current events in the UAS field. Prepares students to participate in research or UAS operational roles. Discusses policy and process issues in society and considerations for ethical UAS use.

OMGT 5983. Advanced Project Management (Irregular). 3 Hours.
This course builds upon the project management for operations managers’ course and offers students an opportunity to apply advanced project management tools to manage troubled projects. Topics include determining the project status using the schedule baseline, cost estimations, and earned value management techniques. Students will learn how to perform a project assessment/audit and will create a troubled project recovery plan. The course includes presentations of case study assignments to gain experience in communicating the status and recovery of failed and troubled projects. Prerequisite: OMGT 5783.