

Master's of Science in Operations Management (MSOM) Program Handbook

The University of Alabama

March 2015

This Handbook is for MS students in the MSOM Program at The University of Alabama. It is intended as a supplement to the Graduate School Catalog which is available upon request. (See <http://www.cba.ua.edu/omms/> and <http://graduate.ua.edu/>.)

MSOM Program Handbook

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General Information

The MSOM Program at The University of Alabama

Operations management (OM) focuses on the analysis, design, and management of the operations that produce and deliver the goods and services. It applies structured, quantitative techniques to analyze and design business operations and to support effective business decision making. Operations management helps evaluate and select actions based on information, process analysis, and quantitative modeling. There are tremendous opportunities for the effective application of these tools, techniques, and methods in a wide range of business operations including service operations, manufacturing, distribution, transportation, logistics, supply chain management, revenue management, quality management, finance, human resources, information systems, marketing, and strategic planning. Operations management can be effectively applied to virtually every component of an organization. The MSOM program features three tracks—operations management, decision analytics (DA), and enterprise integration (EI). This handbook discusses the OM and DA tracks in detail. Students in either of these two tracks may pursue this degree on-line or on-campus. Further, some doctoral students will earn one of these degrees on the way to the PhD degree.

The University of Alabama

The 1,970-acre campus is itself a historic site. Established in 1831, the University was burned by Union troops in 1865. Four original structures were saved and are part of today's campus, where over 35,000 students are enrolled. A recent building program produced numerous dorms, dining facilities, an interdisciplinary research center, and a science research center. The University's goal is to grow, yet keep its historic flavor.

Although progress is our standard and academic excellence our strongest commitment, The University of Alabama has a strong institutional identity and many traditions. From our historic and beautiful campus to our winning football and women's gymnastics teams of national renown, the University gives its students and alumni many reasons to be proud.

Tuscaloosa

With a metropolitan population of approximately 180,000, Tuscaloosa is the cultural, business, and industrial heart of West Alabama. Tuscaloosa offers modern recreational facilities, a variety of arts and entertainment, and a thriving business community that includes the first Mercedes-Benz plant in the United States. This community is also supported by close ties to business and industry in Birmingham, the largest city in Alabama; Mobile, an international seaport; and Huntsville, home of the U. S. Space and Rocket Center and its related technology. Tuscaloosa is also within a half-day's drive of such popular travel destinations as the Gulf Coast, Atlanta, New Orleans, and the Great Smoky Mountains.

Facilities

The Culverhouse College of Commerce and Business Administration complex consists of three buildings located in the central University campus. Mary Howell Alston Hall houses faculty and administrative offices, seminar rooms, and four technologically innovative classrooms. The Angelo Bruno Business Library and Sloan Y. Bashinsky Sr. Computer Center was occupied in January 1994. This integrated business information center includes the expanded business library, three hands-on computer classrooms, and open computer labs for undergraduate and graduate students. Bidgood Hall, the traditional home of the College, reopened in January 1994 after extensive renovations. This building now houses 28 multimedia classrooms and two classrooms equipped to telecast and

receive distance learning classes. The business complex is equipped with a wireless network allowing full Internet access from laptops and other equipped devices. Bidgood Hall also houses the offices of the Manderson Graduate School of Business, office space and group study facilities for graduate students, and the research centers affiliated with the College.

For more information on the facilities of the Culverhouse College of Commerce and Business Administration, please refer to <http://services.graduate.ua.edu/catalog/17300.html>.

Application and Admission Information

Admission

Admission to the MSOM Program is open to qualified individuals who hold undergraduate and/or graduate degrees from accredited colleges and universities, and satisfy the stated prerequisites.

Applicants are normally expected to have completed at least one course of undergraduate calculus. The verbal, quantitative, and analytical portions of either the Graduate Record Examination (GRE) or the Graduate Management Aptitude Test (GMAT) are required of all applicants to the MSOM Program. International Students must submit scores on the Test of English as a Foreign Language (TOEFL).

We prefer that students begin their program in the summer semester for the on-line program and in the fall semester for the on-campus program. It may be possible to start in other semesters as well. We encourage applicants to complete the application process at least two months before the start of the semester in which they would like to be admitted.

Individuals seeking admission to the MSOM Program should follow the application procedure outlined in the Graduate School Catalog. Applications must be submitted on-line at <http://graduate.ua.edu/application/>. All application materials including transcripts, test scores, letters of reference, statement of purpose, and resume must be submitted electronically at the site mentioned earlier. Questions regarding the admissions process may be addressed to The Graduate School: gradschool@ua.edu, or (205) 348-5921.

Financial Aid

Financial support is available for qualified applicants. Some students in the MSOM Program receive support through departmental assistantships. The awards are approximately \$13,500 per year with a full tuition grant for a full-time student (.5 FTE award) in the program. These awards involve nine-month assignments as either a teaching and/or research assistant. Summer teaching assignments are often available. Advanced students have the opportunity to work as consultants on campus or industry supported projects through research grants or other sources.

Additional one-year recruiting fellowships are offered through the College of Commerce and Business Administration on a competitive basis. These fellowships range in amounts from \$500 to \$3,000 and are used to supplement the above-mentioned assistantships.

Students accepted into the MSOM Program are automatically considered for assistantships. Students need not apply separately for these awards.

For additional information, please consult the university's [Financial Assistance Handbook](#).

Housing

The University operates over 385 on-campus apartments. These facilities offer students the best of independent living, as well as the convenience of living on campus. Graduate and married students receive preference on these units. Applications are available from the Office of Housing and Residential Life, Box 870399, Tuscaloosa, AL 35487-0399. A deposit is required with each application. Because of the demand for apartments, it is recommended that applicants apply early.

The Tuscaloosa area offers a wide variety of apartments and condominiums. The Tuscaloosa Apartment and Condominium Guide is the best source of information on available housing in the area. It can be found in printed form at local realty offices and grocery stores. The Guide is also available at www.tuscaloosaapartmentguide.com.

Graduate Student Offices

Graduate teaching assistants (GTA's) and graduate research assistants (GRA's) in the College of Commerce and Business Administration are usually provided with office space on the third floor of Bidgood Hall. In addition, there is a graduate student lounge in Bidgood.

General Academic Policies of the MSOM Program

Prerequisites

Students entering the MSOM Program must have at least one undergraduate calculus course. Working knowledge of a computer programming language (*e.g.*, Fortran, C++ or Java) is desirable but not required.

Transfer Credit

Courses of full graduate-level credit with a grade of B or higher earned in an accredited institution where a student was enrolled in the graduate school may be submitted for review for inclusion in a degree program. Evaluation of credit for transfer will not be made until the student has enrolled in the Graduate School of The University of Alabama. Acceptance of credit requires the approval of the program director and the dean of the Graduate School. Credit will not be accepted for transfer from any institution at which the student failed to achieve at least a "B" average on all graduate work attempted.

A student initiates the request for evaluation of graduate credit obtained at another institution at the Office of the Graduate School. It is also the student's responsibility to assure that an official transcript of the credit concerned is received by the Office of the Graduate School.

With the approval of the program coordinator and the dean of the Graduate School, the greater of 12 hours or 25% of the required coursework for a graduate degree may be transferred from another institution. All credit toward the master's degree, including transfer credit, must have been earned during the six years (18 fall, spring, and summer semesters) immediately preceding the date on which the degree is to be awarded.

Course Load

The typical course load for a graduate student in MSOM Program is 9-12 hours per semester. Graduate assistants with 0.25 FTE assignments (10 hours per week) must enroll in at least 9 hours, but no more than 12 hours of coursework. International Graduate assistants with 0.5 FTE

assignments (20 hours per week) must enroll in at least 6 hours but no more than 9 hours of coursework. In contrast, the typical course load for a distance learning graduate student in the MSOM program is 3-6 hours per semester.

Academic Progress

A graduate student with regular status in a graduate program who drops below a "B" average (at any time after earning six semester hours) will be placed on probation. A student on probationary status must raise his or her overall average to a "B" or better during the next 12 hours of graduate work following the period in which the probation occurred. Failure to do so will result in the student's dismissal from the program.

A grade of "I" (incomplete) is evaluated as an "F," and must be removed within two weeks during the next term of enrollment if the student's grade point average drops below a "B" as a result of the incomplete grade. The evaluations of academic progress of students who register with "I" grades still on their records can result in academic probation or dismissal.

Courses may not be repeated for graduate credit. This includes courses initially taken on an audit basis. However, a course that is required in a student's curriculum in which a "D" or "F" is earned may be repeated for credit, upon the recommendation of the major department or program area and the dean of the Graduate School. Both grades will be considered in the computation of the grade point average.

Graduation Requirements

The student must have a cumulative average grade of not less than "B" in graduate courses undertaken at The University of Alabama, and at least seventy-five percent of the hours taken must have been completed with grades of not less than "B." Grades below "C" are counted in computing grade point averages, but do not carry credit toward a degree.

A maximum of six semester hours of 400-level course credit may be accepted for a master's degree. Such credit must be approved by a faculty advisor, the instructor(s) of the course(s) in question, and the Graduate School. No 400-level credit (except the six hours accepted toward the master's degree) may be accepted for the doctoral degree.

Candidates for the MS degree in OM need to complete and file the following three documents with the Graduate School to receive the degree (right click to open hyperlink):

1. Just prior to the start of your graduating semester, complete the "Application for Degree" form that is available on-line and is accessible through your mybama.ua.edu account.
2. After completion of the Master's Comprehensive Exam (OM 596), complete the form entitled "Masters Exam Form," found at http://graduate.ua.edu/academics/forms/exam_ms.pdf and send it to Dr. Mittenthal.

Course Descriptions for the MSOM Program

Required Courses:

OM 500 Management Science and Spreadsheet Modeling. Three hours. Prerequisite: MATH 121 or equivalent.

Management Science concepts and applications in decision making. Emphasis is on problem formulation and interpretation of results using spreadsheet based modeling and solution procedures.

OM 517 Supply Chain Modeling and Analysis. Three hours. Prerequisite: OM 500 or OM 506. This course provides a framework and quantitative methods for designing, managing, and analyzing the supply chain operations needed to support a firm's business strategy. Students will study the structure of supply chain operations in terms of the following categories: facilities, information, inventory and transportation. Students will analyze the relationship between supply chain structure and performance through case studies and examples that require students to develop analytical models to support their conclusions.

OM 522 Operations Scheduling Problems. Three hours. Prerequisite: OM 500 or OM 506. A broad investigation of a variety of scheduling activities in production, logistics, and service environments are discussed. Typical topics include project scheduling, job-shop scheduling, routing related problems and manpower scheduling.

OM 523 Inventory Management. Three hours. Prerequisite: ST 509 or ST 550 or ST 560. Control techniques for the large multi-term inventories frequently associated with manufacturing supply and wholesale-retail operations are studied. The limitations and usefulness of models in actual practice are discussed. Coverage includes reorder-point procedures, single-period problems, and dynamic situations.

OM 524 Manufacturing Scheduling and Control Systems. Three hours. Prerequisite: OM 500 or OM 506 AND ST 509 or ST 550 or ST 560. An in-depth, analytical study of the systems used in manufacturing planning and control are covered. Alternative approaches used in practice (such as MRP and JIT) are studied.

OM 540 Systems Simulation. Three hours. Prerequisites: ST 509 or ST 550 or ST 560. A study of the management applications of stochastic and deterministic mathematical and computer models in systems design and analysis.

OM 596 Operations Management Capstone Project. Three hours. Prerequisite: permission of instructor.

ST 560. Statistical Methods in Research I. Three hours. Prerequisite: MA 121 or MA 125. Statistical methods for summarizing data; probability; common probability distributions; sampling and sampling distributions; estimation and hypothesis testing for means, proportions, and variances using parametric and nonparametric procedures; power analysis; goodness of fit; contingency tables; and simple regression and one-way analysis of variance.

Restricted Electives [choose at least one of the following two courses]

OM 525 Effective Quality Management. Three hours. Prerequisites: None. Provide participants with a broad understanding of philosophies and methods used to enhance organizational effectiveness in a wide range of organizational settings.

ST 575. Statistical Quality Control. Three hours. Prerequisite: ST 550 or ST 560. Statistical methods useful in control of quality of manufactured products. Shewhart and cumulative sum control charts; process capability analysis; and acceptance sampling procedures by attributes and variables. Emphasis will be placed on understanding, design, implementation, and interpretation of these techniques.

Other Elective Courses:

- MKT 511 Supply Chain Management
- MKT 522 Strategic Logistics Management
- ST 561 Applied Design of Experiments

Other courses may be acceptable at the discretion of the MSOM Program Coordinator.

MSOM Program Requirements

General Requirements

The general requirements for the M. S. degree in OM are outlined in the Graduate School Catalog. The coursework requirements are described below. The student must pass a Master's Comprehensive Examination prior to the award of the degree. This exam is in the form of a written report and oral presentation that summarize the results of a project defined and completed by the student. Students completing the program on-line may submit a video for their oral presentation. Typically, one-and-a-half to two academic years are required to complete all program requirements for on-campus students, while on-line students may require two to three-and-a-half academic years.

Candidates for the master's degree must earn a minimum of 30 semester hours of credit in coursework.

Course Requirements:

Required Core Courses (24 hours)

OM 500 Management Science and Spreadsheet Modeling	OM 517 Supply Chain Modeling and Analysis
OM 522 Operations Scheduling Problems	OM 524 Manufacturing Scheduling and Control Systems
OM 523 Inventory Management	OM 540 Systems Simulation
OM 596 OM Capstone Project	ST 560 Statistical Methods

Electives (6 hours)

At least one of the following two courses:

- OM 525 Effective Quality Management
- ST 575 Statistical Quality Control

If both of the above courses are selected, then none of the courses to the right need to be taken.

At most one of the following courses:

- MKT 511 Supply Chain Management
- MKT 522 Strategic Logistics Management
- ST 561 Applied Design of Experiments

Suggested Sequence of Study

On-Campus [Sample]

Fall (Year 1)	Spring (Year 1)	Summer (Year 1)	Fall (Year 2)	Spring (Year 2)	Summer (Year 2)
OM 500	OM 517	OM 525	elective		
OM 522 or OM 523	OM 524 or OM 540		OM 523 or OM 522		
ST 550	ST 575		OM 596		

Other alternatives are possible depending on the semester and year in which you start the program. If you were an OM undergraduate, then a 2-year, 33-credit hour plan is possible that includes the SAS Data Mining Certificate.

On-Line [2 Year Sample Plan]

Summer (Year 1)	Fall (Year 1)	Spring (Year 1)	Summer (Year 2)	Fall (Year 2)	Spring (Year 2)
ST 560	OM 500	OM 517	OM 525	OM 596	ST 575
	OM 522 or OM 523	OM 524 or OM 540		OM 522 or OM 523	OM 540 or OM 524

Other alternatives are possible, but will typically require additional semesters.

MSOM Program Form

A form for MSOM students is included at the end of this document. At the end of each semester, each student should give an updated copy of this form to the program coordinator for the student's file.

Transfer Credit

With the approval of the student's advisory committee and the dean of the Graduate School, a graduate student may transfer up to 12 hours of required coursework from an accredited institution toward his/her degree in OM. (Other requirements for transferring credit are discussed under Transfer Credit in the General Academic Policy section.) Any transfer of credit should be discussed with the advisor or program committee. In addition to a valid transcript for such coursework, the syllabus and or the textbook used may have to be provided.

Comprehensive Exam

The student must perform satisfactorily on a comprehensive examination to demonstrate his/her competence in operations management. This examination is based on the deliverables of a student-defined, real-world related project. Students are given a second opportunity to pass this exam if initially unsuccessful.

Time Limitations

All requirements for the Master's degree must be completed during the six calendar years immediately preceding the date on which the degree is to be awarded.

GTA and GRA Policies

Many students in the MSOM Program receive support through departmental assistantships. The awards are currently in the \$11,500 range with a full tuition waiver for a full-time student in the Program. These awards involve nine-month assignments as either a teaching and/or research assistant. By accepting these positions, students agree not to hold any other job during the academic year. Summer teaching assignments are often available.

Graduate teaching assistants (GTA's) are assigned either to teaching one to two sections of Introduction to Operations Management (OM 300) for undergraduate students or to assisting a faculty member in his or her teaching duties. A GTA must complete 18 hours of graduate study in OM to be eligible to teach undergraduate classes. In the first year of the program, GTA's may be assigned to a professor who is teaching OM 300. A GTA is required to attend each lecture in preparation for teaching the course on his or her own in the following year. A GTA assists in grading homework, preparing and grading exams, conducting problem sessions with small groups of students, and helping with other administrative duties associated with the course.

Graduate research assistants (GRA's) are assigned to one or more professors to provide research assistance. This work typically involves library research and computer programming.

GTA and GRA support is awarded on a year-to-year basis. A GTA or GRA is usually reappointed subject to satisfactory completion of his or her duties and satisfactory progress in the MSOM Program. Support is not usually awarded more than two years for M.S. students.

Guidelines for Graduate Teaching Assistants

The teaching policy for GTA's is primarily the same as that for faculty members in the Department of Information Systems, Statistics, and Management Science. Some of the specific duties are:

Office Hours -- All instructors must maintain regular office hours to answer questions from students. A GTA should maintain at least four (4) office hours per week. The schedule of office hours is determined by the faculty member and GTA's at the beginning of each semester and posted in the bulletin board in the basement of Alston Hall. A schedule should also be posted outside the GTA office.

Syllabus -- The supervising faculty member of any course is in charge of developing the common syllabus used in all sections of that course. The GTA is expected to meet each class for the entire class period and cover the material as described in the syllabus.

Class Attendance -- The GTA is expected to conduct his/her classes regularly as scheduled and to meet each class for the entire class period. In the event of illness or necessary absence from the campus, the GTA must notify the faculty member in charge and arrange for a suitable substitute for

missed classroom time. Any arrangements must be reported to the faculty member and the departmental chairperson.

Exams -- The exam schedule is given in the daily syllabus for the course. All exams are expected to be closed-book, except for formula sheets which are allowed. The supervising faculty member can approve all exams and offer advice for improving exams. Different versions of exams should be given in separate sections. If the classroom is crowded, two versions of the exam should be used. Classes should be monitored closely to ensure academic honesty.

Class Records -- GTA's are expected to maintain adequate grade records for all registered students. All grade records should be left with the department chairperson when you leave the University.

Above all, do not hesitate to discuss any problems or issues with the faculty supervisor or any other faculty member.

The *Graduate Assistant Guide* published by the Graduate School is an excellent source for additional information on the role and duties of graduate teaching assistants.

List of OM Faculty

Burcu Keskin, Associate Professor of Operations Management, Ph.D., Texas A&M University
Emmett Lodree, Associate Professor of Operations Management, Ph.D., University of Missouri
Andrea Marks, Clinical Instructor of Operations Management, MBA, University of Kentucky
Sharif Melouk, Associate Professor of Operations Management, Ph.D., Texas A&M University
David Miller, Professor of Operations Management, Ph.D., Georgia Tech
John Mittenthal, Associate Professor of Operations Management, Ph.D., University of Michigan
Karthik Murali, Assistant Professor of Operations Management, Ph.D., University of Illinois
Bill Petty, Clinical Instructor of Operations Management, MBA, University of Cincinnati
Chuck Sox, University Professor of Operations Management, Ph.D., Cornell University
Mesut Yavuz, Associate Professor of Operations Management, Ph.D. University of Florida
Minjiao Zhang, Assistant Professor of Operations Management, Ph.D., Ohio State University

Chuck Schmidt, Professor Emeritus of Operations Management, Ph.D., University of Chicago

Recent Graduates of the MSOM Program

Kayla Stanley, M.S. (2008)

Current position: Analyst, Cahaba Government Benefit Administrators, LLC

Ben Neve, M.S. (2008)

Current position: PhD Candidate, University of Alabama

Dan Acker, M.S. (2008)

Current position: Product / Design Engineer, Cummins Turbo Technologies

Tim Overton, M.S. (2008)

Current position: CQE, T&L Specialty Company, Inc.

Keith Hanson, M.S. (2008)

Current position: Management Trainee, BMW

Robert Laney, M.S. (2007)

Current position: Steel Foundry Engineer, ACIPCO

Aaron Huff, M.S. (2007)

Current position: Senior Editor, Commercial Carrier Journal

Mansik Hur, M.S. (2007)

Current position: completed PhD in 2008; Lt. Col. in Korean Air Force

Advice on Finding a Job

Job markets are tight in all fields now, so it pays to be prepared. The following is some advice which should help you in your job search.

General Advice

1. Save your teaching evaluations and, if possible, obtain a few letters from your students describing your teaching ability.
2. In addition to working as a teaching or research assistant, it would benefit you to work in developing some practical experience in applying OM methods. This could be done by working on projects with the Alabama Productivity Center or with a faculty member.
3. Check *ORMS Today* regularly for job openings as well as our job listings file kept in the department.
4. Have at least one faculty member review your resume and a sample cover letter.
5. Talk to your advisor about how to interview effectively. Some general tips include:
 - Overdressing is better than underdressing.
 - Don't bring up the issues of salary and benefits unless asked. This topic usually comes up late in the interview or after the interview.
 - Always practice your presentation (if one is required) before the interview. Make sure that most of it is understandable to a trained statistician unfamiliar with your particular topic. Never run over the allotted time.
 - Be enthusiastic and optimistic about meeting the job requirements and responsibilities.
 - Always be polite even if you don't get the job. There may be an opportunity later for you or another University of Alabama student.
6. If you do find a job, but later decide to change jobs, keep in mind the fact that it is much easier to find a job if you already have one, *i.e.*, don't quit your job first and then start looking. The gap in your employment history will raise questions.

Specific Advice for M. S. Students

1. Learn as much as possible about the various software packages such as Arena, LINGO, Excel, OPL, Legin, etc. Many jobs in industry require this knowledge.
2. Your job search should begin in earnest late in the Fall semester or early in the Spring semester of your second year. Do not wait until after you graduate to begin looking for a job.

MSOM (OM Concentration) Program Form

Name: _____

Prerequisites: MA 121 or higher

Required:	Course	Grade	Semester	Instructor
	OM 500	_____	_____	_____
	OM 517	_____	_____	_____
	OM 522	_____	_____	_____
	OM 523	_____	_____	_____
	OM 524	_____	_____	_____
	OM 540	_____	_____	_____
	ST 560	_____	_____	_____
	ST 575 or	_____	_____	_____
	OM 525	_____	_____	_____
	OM 596	_____	_____	_____
Electives:	(choose 1)			
	OM 525	_____	_____	_____
	MKT 511	_____	_____	_____
	MKT 522	_____	_____	_____
	ST 561	_____	_____	_____
	ST 575	_____	_____	_____

Coordinator: _____ Date: _____

Program Completion Checklist:

1. Complete a program of study while consulting with Dr. Mittenthal.
2. Just prior to the start of your graduating semester, complete the "Application for Degree" form that is available on-line and is accessible through your mybama.ua.edu account.
3. After completion of the Master's Comprehensive Exam (OM 596), complete the form entitled "Masters Exam Form," found at http://graduate.ua.edu/academics/forms/exam_ms.pdf and send it to Dr. Mittenthal.