

# DOCTOR OF PHILOSOPHY (PHD) DEGREE IN THE FIELD OF BUSINESS AND A MAJOR CONCENTRATION IN OPERATIONS MANAGEMENT

## Program Learning Outcomes for the MA and PhD Degrees in the field of Business and a Major Concentration in Operations Management

Upon completing the MA and PhD degrees in the field of Business and a major concentration in Operations Management, students will be able to:

1. Understand advanced Organizational Management concepts, theories, principles, and methods to advance the systematic and scientific study of the operations of business, government, and nonprofit organizations that manufacture products and provide services that contribute to the well being of society.
2. Identify and explain questions and problems existing within the field of Operations Management and propose research to address them.
3. Execute original research in the field of Operations Management around topics that arise in a varied set of contexts, such as manufacturing, supply chains, energy, healthcare, and technology management, and related processes, including strategic design, tactical planning, and operational execution.
4. Communicate effectively, orally and in writing, research conducted in the field of Operations Management.

## Requirements for the MA and PhD Degrees in the field of Business and a Major Concentration in Operations Management

### MA Degree Program

The MA degree is a non-thesis master's degree. For general university requirements, please see [Non-Thesis Master's Degrees \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-non-thesis-masters-degrees/\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-non-thesis-masters-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/). Although students are not normally admitted to study for an MA, graduate students may earn the MA along the way to the PhD. Students pursuing the MA degree in the field of Business must complete:

- A minimum of 36 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 9 credit hours of doctoral seminars in the student's specified discipline or PhD major concentration.

- A minimum residency enrollment of four fall and/or spring semesters of full-time graduate study at Rice University.
- A minimum overall GPA of 3.00 or higher in all Rice coursework.

Students must also successfully complete the research workshop participation requirements and the first-year summer research requirements (if applicable) in the PhD major concentration. Additionally, the Jones Graduate School of Business (JGSB) requires that not more than 3 years elapse between the time the student is admitted to the PhD program in Business and the completion of the MA degree, unless an extension is approved by the PhD Program Committee. The MA degree may only be conferred either concurrently with or prior to the conferral of the PhD degree.

The requirements listed in the General Announcements (GA) satisfy the minimum requirements for this degree program. In certain instances, courses (or requirements) not officially listed here may be substituted upon approval of the program's academic advisor or, where applicable, the department or program's Director of Graduate Studies. Course substitutions or any exceptions to the stated official curricular requirements must be approved by the [Office of Graduate and Postdoctoral Studies \(https://graduate.rice.edu/\)](https://graduate.rice.edu/). Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

Code	Title	Credit Hours
	Total Credit Hours Required for the MA Degree in the field of Business	36

### PhD Degree Program

For general university requirements, please see [Doctoral Degrees \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-doctoral-degrees/\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-doctoral-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/). For program details, see the PhD Program Guidebook distributed by the Jones Graduate School of Business. Admissions applications should include scores on the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE). Full financial support will be provided to admitted doctoral students. Candidates for the PhD degree spend at least two years in full-time coursework and at least two years writing the thesis. Four to five years is a reasonable goal for completing the program. Students pursuing the PhD degree in Business must:

- Complete a program of doctoral-level courses that is approved by the area (or major concentration) faculty advisor. Students take courses from departments such as economics, psychology, statistics, and political science in addition to courses from Jones Graduate School of Business.
- Complete all Rice coursework with a minimum overall GPA of 2.67 or higher.
- Complete all program coursework with a minimum GPA of 3.00 and a minimum grade of B (3.00 grade points) in each required course.
- Complete all of the course requirements in their selected major concentration.
- Complete and defend orally a doctoral thesis, setting forth in publishable form, the results of original research.

The requirements listed in the General Announcements (GA) satisfy the minimum requirements for this degree program. In certain instances, courses (or requirements) not officially listed here may be substituted upon approval of the program's academic advisor or, where applicable, the department or program's Director of Graduate Studies. Course substitutions or any exceptions to the stated official curricular requirements must be approved by the [Office of Graduate and Postdoctoral Studies](https://graduate.rice.edu/) (<https://graduate.rice.edu/>). Students and their academic advisors should identify and clearly document the courses to be taken.

## Summary

Code	Title	Credit Hours
Total Credit Hours Required for the PhD Degree in the field of Business and a Major Concentration in Operations Management		90

## Major Concentration: Operations Management

Students pursuing the major concentration in Operations Management must:

- Complete a minimum of 90 credit hours as listed below to satisfy the PhD degree and the major concentration requirements.
- Complete coursework approved by the area faculty advisor; these courses will be a combination of Core Requirements and Elective Requirements.
- Complete a minimum of 12 credit hours of approved graduate-level coursework per semester, in the first two years in the program.
- Complete research study and paper requirements during the first two years in the program.
- Successfully pass a comprehensive exam.
- Receive teaching experience as a teaching assistant (and as an instructor if possible).
- Complete and defend thesis within a maximum of 7 years from the time of matriculation.

Code	Title	Credit Hours
<b>Core Requirements</b> <sup>1</sup>		
BUSI 571	MARKOV DECISION PROCESSES IN OPERATIONS MANAGEMENT	3
BUSI 572	GAME THEORY IN OPERATIONS MANAGEMENT	3
BUSI 573	STOCHASTIC MODELS IN OPERATIONS MANAGEMENT	3
BUSI 800	PHD RESEARCH	1-12
CMOR 541	LINEAR AND INTEGER PROGRAMMING	3
ECON 501	MICROECONOMICS I	3
ECON 508	MICROECONOMICS II	5
ECON 510	ECONOMETRICS I	3
STAT 518	PROBABILITY	3

### Elective Requirements

Select up to 52 credit hours of elective coursework with the approval of the major concentration PhD advisor to total a minimum of 90 credit hours (see course list below for typically approved electives).

**Total Credit Hours** **Minimum of 90**

### Footnotes and Additional Information

<sup>1</sup> Enrollment in 12 credit hours of BUSI 800 *PhD Research* is required per academic year.

## Elective Requirements

With the approval of the Operations Management major concentration PhD advisor, students must select up to 52 credit hours of additional coursework as Elective Requirements to total a minimum of 90 credit hours. The following are typically approved courses that may be chosen to fulfill Elective Requirements.

Code	Title	Credit Hours
BUSI 520	PYTHON FOR BUSINESS RESEARCH	1.5
BUSI 521	FINANCIAL ECONOMICS I	3
BUSI 522	CORPORATE FINANCE	3
BUSI 523	EMPIRICAL METHODS IN FINANCE	3
CMOR 504	GRAPH THEORY	3
CMOR 531	CONVEX OPTIMIZATION	3
CMOR 532	OPTIMIZATION THEORY	3
CMOR 544	STOCHASTIC OPTIMIZATION	3
ECON 504	COMPUTATIONAL ECONOMICS	3
ECON 511	ECONOMETRICS II	3
ECON 514	EMPIRICAL INDUSTRIAL ORGANIZATION	3
ECON 517	EMPIRICAL INDUSTRIAL ORGANIZATION II	3
STAT 502	NEURAL MACHINE LEARNING I	3
STAT 519	STATISTICAL INFERENCE	3
STAT 541	MULTIVARIATE ANALYSIS	3
STAT 581	MATHEMATICAL PROBABILITY I	3

## Other

The main goal of the Operations Management major concentration of the PhD degree in the field of Business is to train students to do high-quality research in Operations Management and to prepare them for careers as professors of Operations Management at top academic, research-focused institutions. To achieve this goal, PhD students are required to take courses in Operations Research, Economics, and related disciplines such as Mathematics and Statistics. They will also conduct original research and write research papers examining important and relevant issues in Operations Management. Students are expected to become active in research at the inception of the program and learn through both formal coursework and informal mentorship. The major concentration also has a teaching assistantship requirement (and encourages students to be instructors if possible) to prepare students for the teaching responsibilities typical at a top research university.

## Policies for the PhD Degree in the field of Business

The General Announcements (GA) is the official Rice curriculum.

As an additional resource for students, the Jones Graduate School of Business publishes a graduate program handbook, which

can be found here: [https://gradhandbooks.rice.edu/2024\\_25/Business\\_PhD\\_Graduate\\_Handbook.pdf](https://gradhandbooks.rice.edu/2024_25/Business_PhD_Graduate_Handbook.pdf).

## Transfer Credit

For Rice University's policy regarding transfer credit, see [Transfer Credit \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer). Some departments and programs have additional restrictions on transfer credit. Requests for transfer credit must be approved for Rice equivalency by the appropriate academic department offering the Rice equivalent course (corresponding to the subject code of the course content) and by the Office of Graduate and Postdoctoral Studies (GPS). Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

## Withdrawal Policy

A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university's Academic Calendar posted on the [Rice Office of the Registrar website \(https://registrar.rice.edu/calendars/\)](https://registrar.rice.edu/calendars/).

## Additional Information

For additional information, please see the Jones Graduate School of Business website: <https://business.rice.edu/>.

# Opportunities for the PhD Degree in the field of Business

## Financial Aid

Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

## Additional Information

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