BACHELOR OF ARTS (BA) DEGREE WITH A MAJOR IN OPERATIONS RESEARCH

Program Learning Outcomes for the BA Degree with a Major in Operations Research

Upon completing the BA degree with a major in Operations Research, students will be able to:

1. Formulate mathematical programs and stochastic processes that model real-world situations. (Critical Thinking)
2. Design and analyze exact and approximate approaches to solve operation research models. (Design)
3. Design, implement and debug software to solve operations research models. (Design)
4. Communicate the solutions and insights generated by operations research models to a non-technical audience. (Communication)

Requirements for the BA Degree with a Major in Operations Research

For general university requirements, see Graduation Requirements (https://ga.rice.edu/undergraduate-students/academic-policies-procedures/graduation-requirements/). Students pursuing the BA degree with a major in Operations Research must complete:

- A minimum of 20-21 courses (64-69 credit hours), depending on course selection, to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 14 courses (43-45 credit hours, depending on course selection) taken at the 300-level or above.

The undergraduate program in operations research has been designed to accommodate a wide range of student interests. Students are strongly encouraged to take additional courses in pure and applied mathematics, computation, and modeling.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<th>Code</th>
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<th>Credit Hours</th>
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<td>Total Credit Hours Required for the Major in Operations Research</td>
<td>64-69</td>
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<td>Total Credit Hours Required for the BA Degree with a Major in Operations Research</td>
<td>120</td>
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Degree Requirements

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<td><strong>Introductory Requirements</strong></td>
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<td><strong>Intermediate Requirements</strong></td>
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2020-2021 General Announcements PDF Generated 08/18/21
ECON 443 FINANCIAL ECONOMICS
ECON 449 PRINCIPLES OF FINANCIAL ENGINEERING
ELEC 475 LEARNING FROM SENSOR DATA
ELEC 577 ALGORITHMS AND OPTIMIZATION FOR DATA SCIENCE
INDE 511 GRAPH ALGORITHMS
STAT 418 PROBABILITY
STAT 419 STATISTICAL INFERENCE
STAT 421 APPLIED TIME SERIES AND FORECASTING
STAT 449 QUANTITATIVE FINANCIAL RISK MANAGEMENT
STAT 482 QUANTITATIVE FINANCIAL ANALYTICS
STAT 486 MARKET MODELS
STAT 581 / CAAM 581 MATHEMATICAL PROBABILITY I
STAT 582 MATHEMATICAL PROBABILITY II

Senior Design
DSCI 435 / COMP 449 APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS

Total Credit Hours Required for the Major in Operations Research 64-69
Additional Credit Hours to Complete Degree Requirements 20-25
University Graduation Requirements 31

Total Credit Hours 120

Footnotes and Additional Information
• Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Policies for the BA Degree with a Major in Operations Research

Program Restrictions and Exclusions
Students pursuing the BA degree with a major in Operations Research should be aware of the following program restriction:

• Students pursuing the major in Operations Research may not additionally declare the major in Computational and Applied Mathematics.
• Students pursuing the major in Operations Research may not additionally declare the minor in Computational and Applied Mathematics.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit. Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Operations Research should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Computational and Applied Mathematics website: https://www.caam.rice.edu/.

Opportunities for the BA Degree with a Major in Operations Research

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (https://ga.rice.edu/undergraduate-students/honors-distinctions/university/), summa cum laude, magna cum laude, and University Honors Distinctions. Some departments have department-specific Honors awards or designations.

Five-Year Master's Degree Option for Rice Undergraduate Students
In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

• must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
• should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
• more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here.

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Computational and Applied Mathematics (MCAAM) degree. For additional information,
students should contact their undergraduate major advisor and the MCAAM program director.

**Additional Information**

For additional information, please see the Computational and Applied Mathematics website: [https://www.caam.rice.edu/](https://www.caam.rice.edu/).