

Career Spotlight

Operations Research Analyst

Operations research analysts are involved in strategizing, planning, and forecasting. These analysts help to allocate resources, identify and define business problems, collect and organize information from a variety of sources, measure performance, design production facilities and systems, manage the supply chain, set prices, coordinate transportation and distribution, and analyze large databases. They also have been used in wartime to effectively deploy radar, search for enemy submarines, and get supplies to where they are most needed. Most operations research analysts in the federal government work for the Department of Defense, which also employs a large number of analysts through private consulting firms.



EDUCATION

Operations research analysts must obtain the minimum requirement of a bachelor's degree in an area such as mathematics. Most employers do prefer applicants with a master's degree and computer programming skills. Keeping up to date with technological advances and improvements in analytical methods is essential.

WHEN MATH IS USED

Operations research analysts use math to solve a wide variety of problems:

- emergency medical services to plan the deployment of ambulances
- governments to analyze the flow of patients through a health care system
- hospitals to design blood banking systems or schedule staff and patient rooms
- police departments to devise shift schedules that minimize response time and meet budget and human resource needs
- railway companies to schedule and optimize the use of rolling stock
- airlines to develop pricing strategies, schedule crews and aircraft, and develop disaster recovery plans
- manufacturing companies to design or increase the efficiency of production systems
- oil companies to evaluate prospective oil or gas projects
- forestry companies to help decide how to manage large tracts of forest land
- investment firms to manage risk and optimize portfolios

POTENTIAL EMPLOYERS

Many operations research analysts in the Federal Government work for the Department of Defense, and others in private industry work directly or indirectly on national defense. Employment of operations research analysts is expected to grow by 15 percent from 2010 to 2020. As technology advances and companies further emphasize efficiency, demand for operations research analysts will continue to grow.

FACTS

The game theory, a part of operations research, was used to select a strategy for the Battle of Midway during World War I. The U.S. Navy was on one side of Midway Island, and the Japanese Navy on the other. The U.S. calculated their probability of winning in the four cases of our going north of the island or south of it, and the same for the Japanese. Game theory was then used to select the winning strategy.

CITATIONS

<http://www.bls.gov/oes/current/oes152031.htm>
<http://math.usask.ca/document/netinfo/careers.html>

MATH REQUIRED

- College Algebra
- Trigonometry
- Calculus I, II, III
- Advanced Multivariable Calculus
- Linear Algebra
- Advanced Linear Algebra
- Linear Programming

Low-end Salary: \$43,520/yr
Median Salary: \$78,630/yr
High-end Salary: \$132,500/yr