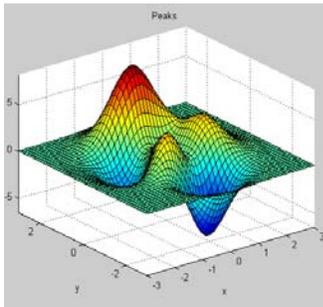


Major: Operations Research and Computer Analysis (ORCA)



Operations Research and Computer Analysis, or ORCA, “is the application of advanced analytical methods to help make better decisions.”¹ The study of Operations Research, or OR, originated during WWII. Since its inception, it has been crossing boundaries from military application into numerous fields, such as grocery store inventory and airline scheduling, in order to determine the most efficient approach to manage limited resources while achieving objectives.

Questions/Self Assessment: Are you industrious, eager to learn, and inventive? Do you enjoy learning about new computer techniques and applying them to everyday problems? Are you continually thinking about how organizations, policies, networks, etc, can be improved?

As an ORCA Major you will be exposed to numerous fields of study, emphasizing “the practical application of mathematics, statistics, and computer techniques to ‘real world’ problems.”² Cadets are exposed to a breadth of courses in mathematics which provide the fundamentals to create mathematical models, simulations, and algorithms used in problem solving. ORCA majors also have the opportunity to take elective courses that delve deeper into the fundamentals of mathematical reasoning and analysis. Computer technology is a cornerstone of the ORCA major, and cadets are exposed to frontline software that is currently applied in industry. Graduates develop a strong background in computer programming, becoming proficient in numerous software packages, including Access, Excel, Minitab, ProModel, and Mathematica. Students will gain real world experience through a Capstone Senior Design Project their final semester. Each student group will take on a Coast Guard operations research problem and provide solutions that have a substantial affect on the service they are about to enter.

As a US Coast Guard Officer, you will have the ability make a direct impact on the efficiency of your unit. Graduates have been able to immediately apply an ORCA education at their cutter, sector, or air station. One graduate was involved in developing a more efficient method for targeting fishing vessels for inspection, reducing costs and saving resources while improving the quality of the inspection service provided to the public. The Coast Guard recognizes the need for officers trained in the ORCA discipline, and has continually increased graduate school opportunities for ORCA majors citing “the service need for graduates of this challenging, career-enhancing skill set with universal application to a broad spectrum of specialties has grown significantly in recent years and continues to grow.”³

As a civilian, should you decide to leave the US Coast Guard, you will be nearly unlimited while selecting a job field to enter as Operations Research analysts “are employed in almost every industry, as companies and organizations must effectively manage money, materials, equipment, people, and time.”⁴ Additionally, employment opportunities in the OR field are projected to grow 22% over the next few years, much higher than many other fields, which is a reflection of the value placed on employees with a background in OR.

¹ Informs, About Operations Research, on the Internet at <http://informs.org/About-Informs/About-Operations-Research> (visited March 27, 2012)

² U.S. Coast Guard Academy, Operations Research and Computer Analysis, on the Internet at <http://www.cga.edu/academics2.aspx?id=285> (visited March 27, 2012).

³ U.S. Coast Guard ALCOAST MSG 252/10, on the Internet at http://www.uscg.mil/announcements/alcoast/252-10_alcoast.txt (visited March 27, 2012)

⁴ Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2010-11 Edition*, Operations Research Analysts, on the Internet at <http://www.bls.gov/oco/ocos044.htm> (visited March 27, 2012).