Preface

By: Dr. Randall Pyke

Operations Research (O.R) is a well-established discipline in the mathematical sciences. In its early years it was primarily directed to problems in logistics such as transportation and scheduling, but has spread to many other application areas nowadays such as management, marketing, finance, engineering, computing science, health care, and policy advising, to name some. In the face of increasing complexity of problems and the enormous sizes of data sets to sift through, mathematics has become the enabling factor in dealing with many of the problems faced in the modern world. Its vigour is evident in the annual meetings of INFORMS in the U.S. with over 4400 participants, and the Canadian Operational Research Society (CORS) www.cors.ca/cors2012. O.R. has several faces depending on where the applications are directed towards and the level (or amount) of mathematics used. It is motivated by its applications outside of the sciences, especially in business. Operations researchers will often be working with colleagues who are not mathematically trained, and who will rely on the O.R. professionals analytic skills to provide a sound basis from which to make decisions. Conversely, the O.R. professional will need to understand the issues and problems faced by these colleagues and distill it into a mathematical form where O.R. techniques may be allied (a process called mathematical modeling).

There are many great success stories in the history of O.R. ranging from improving health outcomes and saving money by streamlining resources at hospitals, to reducing the environmental impact of large industries such as mining. The purpose of operations research may be stated as finding the best outcome under limited resources. Or, more simply, O.R. helps us make better decisions. The new Operations Research BSc program at SFU is designed to give students a solid foundation in the mathematics that lie at the heart of O.R. techniques, familiarity with the kind of analytical software used in industry, practice at working on real world problems (from inception to conclusion), development of communication skills (including working in a group environment, practice at making presentations and reports), and a broadening of students individual interests in areas where O.R. can be applied.

The cornerstone of this new program is a pair of writing intensive, project-based courses: Math 208W Introduction to Operations Research, and MATH 402W: Operations Research Clinic. We are proud of the excellent work done by our students in these course, and happy to present

some of the highlights in this journal. We were delighted that two of the projects from the inaugural offering of Math 402W won the top two prizes in the 2012 CORS student paper competition.

Further information about operations research and the programs offered at SFU in operations research can be found on the SFU Surrey webpage
http://www.surrey.sfu.ca/science/math/research. You can also contact Dr Randall Pyke, rpyke@sfu.ca, the mathematics advisor for SFU Surrey.