Since its inception, the Council has encouraged and supported research in Canadian universities. A system of postgraduate scholarships and post-doctorate fellowships is provided for the assistance of students (Canadians and landed immigrants) who have shown promise of research ability. The awards are: postdoctorate fellowships; postgraduate scholarships; bursaries; 1967 Science Scholarships; post-industrial experience research (PIER) fellowships; and postgraduate scholarships in science, librarianship and documentation. Awards are for advanced studies and/or research in science and engineering and are competitive, academic excellence being the main criterion in the selection of successful candidates.

In addition to the support provided for research in Canadian universities, the Council now has a postdoctorate program for the support of research in Canadian industry, which was introduced in 1970. These industrial postdoctorate fellowships are intended to encourage highly-qualified science and engineering students to seek careers in industry.

Postdoctorate fellowships and industrial postdoctorate fellowships are awarded to candidates who have recently completed or who are about to complete their requirements for a doctorate degree. The purpose of the two programs is to enable those who have received a doctorate degree to undertake, before becoming permanently employed, postdoctoral research for up to two years after receiving their degree. Postdoctorate fellowships are tenable in Canadian universities and in universities and other institutions abroad. Industrial postdoctorate fellowships are tenable in industrial organizations in Canada.

Postgraduate scholarships are awarded for tenure in Canada, and successful candidates may elect to carry out their programs at the Canadian universities of their choice. Although awards are intended for tenure in Canada only, successful candidates for whom facilities for a Ph.D. program are limited or lacking in Canada may receive special NRC permission to hold their scholarships at a university abroad.

The Council modified the program in 1970, and the winner of an award for a first year of graduate study now has the option of deferring tenure of his scholarship for up to two years to encourage him to investigate career opportunities in industry.

Bursaries are awarded to students nominated by universities. Canadian universities receive an annual quota of bursaries from the National Research Council and are responsible for the selection of students for these awards. Unlike postgraduate scholarships, bursaries are not transferable; tenure must be at the university that nominated the student for the award.

The 1967 Science Scholarship Program was introduced in 1967 to celebrate the centennial of Canadian Confederation and the fiftieth anniversary of the National Research Council. These awards are intended to encourage young men and women of outstanding intellectual promise to pursue postgraduate studies and research leading to doctorate degrees. It is intended that they should stimulate exchanges of students between different cultural and geographical regions in Canada. Scholars must select for graduate studies universities other than those from which their first degrees were obtained.