

NSERC CREATE – Application Outline, Example 1 (Bioscience Focus)

TRAINING PROGRAM

1. INTRODUCTION

Introduce research and what is seeks to understand (in layperson terms). Explain why this research is significant and timely. Reference a government quote or stat to confirm that this is a national priority area.

Describe the current state of this field and its subfields. Explain why an integrative approach to bring together these subfields with related areas is required. Give a few examples of how such an integrative approach would advance solutions for pressing challenges.

Introduce the proposed program by addressing the 5W+H. What (title). Why (goal). Who (how many faculty participants, listed separately in appendix). Where (host centre/institute). How and when (bullet the main elements of the program, e.g., HQP training; lab rotations; new courses; short-term workshops; 4-month internship program).

Explain why the timing for this program is ideal. Describe the institution’s capacity to run a program of this size and scale (e.g., space, facilities, resources, expertise). Summarize the institutional commitment to support the development and operation of the program.

2. NEED

Describe the scientific and technical skills required by researchers in this area. Explain the research gaps that this program would help train new researchers to address, and how. Give a few examples of how this increased capability would advance the field.

Describe what additional skills are needed that aren’t a part of existing training programs. Explain how technological advances, inter- and cross-disciplinary collaboration, and big data have now made it possible to address open questions and challenges in the field.

Summarize how the proposed training program will seize these opportunities through its novel and integrated approach.

3. HQP

- A. UNDERGRADUATE STUDENTS.** Explain how this group will be incorporated into the training program. Address the what, why, and how. Some examples:
- What: x# of undergraduate student research stipends modeled after the NSERC USRAs, open to any u/g enrolled in a degree-granting university. Why: NSERC USRAs aren't available to international students and can't be used as a recruitment tool. How: advertise the program to other universities, deadline and form identical to NSERC USRA, selection made by Graduate Committee.
 - What: x# of "shadow" days, one internal and one external, where student works alongside scientists in another group to learn about their research. How: Describe how it will work, and who will identify willing hosts (e.g. program's Admin Asst). Why: Facilitates understanding, increases mentoring, provides networking/contact opportunities.
 - What: participation in existing undergraduate research network at the university. How: Presenting at network's annual conference. Why: Develop knowledge dissemination skills.
- B. GRADUATE STUDENTS.** Explain how this group will be incorporated into the training program. Address the what, why, and how.
- What: \$10,000 stipend, renewable for a second year, x# total per year. Why: Project team members have excellent track records in HQP training, as represented by student awards won and positions obtained, etc. They are limited by funding available for training, esp. for international students and new faculty members. How: Will be announced earlier than NSERC awards to recruit best and brightest; application evaluated by Graduate Committee.
 - What: program "affiliates" (not receiving stipends from CREATE) will be eligible for all program offerings and are eligible to compete for 1 of 4 international travel awards offered each year of the program. Why: To increase networking at international level and increase the # of HQP trained by the program. How: all applicants who work with a project member will be regarded as affiliates and eligible for program offerings.
- C. POSTDOCTORAL FELLOWS.** Explain how this group will be incorporated into the training program. Address the what, why, and how.
- What: x# of Fellowships at \$40,000 per year, renewable for a 2nd year. Why: Past postdocs have secured outstanding academic appointments [highlight some names and positions in a table]; they will enrich the intellectual environment of the program through their seminar series and discussion groups, scientific expertise; mentorship.

4. PROGRAM STRUCTURE

- A. PROGRAM COMPONENT 1.** Explain how this component will be incorporated into the training program. Address the what, why, and how. Provide details and examples, speaking to what experience in particular that students will gain, etc. What will be the expectations of the students involved in each training component? How will it benefit them? How will add value to existing training programs? Some examples – See 2019and2018_CREATE_Recipient_Overview document for more:
- a. What: Lab rotations. Why: to widen the skills of the students, increasing the likelihood that their research will bridge sub-disciplines. How: Students will fill out a Rotation Plan.
 - b. What: x new graduate courses (including a seminar “survey” course, where speakers are funded through the program; a course on ethical and social issues; a course on hot topics; a topical course; a statistical methods course. List other existing courses that the students can take. How: Students required to take at least 12 units of credit; the survey course is required.
 - c. What: Professional skills training courses (already existing courses that students will be recommended to take). Why: Learning how to give a seminar, prepare proposals, etc.; also develops a sense of community for the program.
 - d. What: 2-week workshops, 2 per year.

RESEARCH TEAM

1. PARTICIPANTS

Summarize how many faculty members, emeritus faculty, affiliates will participate in the program. List in appendix. Explain how the group is well recognized as leading researchers in their area, and have established networks and collaborations with industry, community groups, etc. which can be leveraged into mobility and internship programs for students. Describe their positive track record in working together.

2. PROGRAM MANAGEMENT

Describe who will administer the program (e.g. a research centre/institute at SFU of which the PI is Director, where the Director/PI is ultimately responsible for the program and the admin asst. of centre/institute will provide administrative and logistical support for the activities of the CREATE program and its committees).

- A. PROGRAM COMMITTEE STRUCTURE.** Describe composition of committee (e.g., Chair who is not a PI or co-PI, member of Graduate Committee, non-academic rep, external researcher). When will they hold their first meeting (e.g., within a month after

- notification of funding) and what will they discuss. How often will meetings be scheduled after this, and what will be the main purpose of these meetings (e.g., discuss internal and external effectiveness of the program and progress of its students and PDFs). Describe annual reporting requirements (e.g., annual reports must be submitted to the committee and approved).
- B. **GRADUATE COMMITTEE STRUCTURE.** Describe composition of committee (e.g., three CREATE team members, with admin assistance). Explain purpose of committee (including to evaluate applications for program trainees and offer fellowships). Describe annual reporting requirements (e.g., will gather and analyze student evaluations to assess efficacy of program).
 - C. **SEMINAR COMMITTEE STRUCTURE.** Describe composition of committee (faculty reps, one post-doc fellow, at least one graduate student). Explain purpose of meetings (to coordinate with lab hosts and with the admin assistant to invite speakers, make arrangements, etc.)
 - D. **POSTDOCTORAL FELLOW COMMITTEE STRUCTURE.** Describe composition of committee (incl. project director and admin assistant). Explain purpose of committee (to evaluate applications for postdoctoral fellowships and ensure that positions are advertised.)
 - E. **ADMINISTRATIVE POSITION(S).** Describe any administrative positions needed (e.g., Internship Coordinator to oversee internship component, Workshop Coordinator to oversee workshop component) and what they will do.

3. PROGRAM EVALUATION

Describe how the program will be evaluated. Who will work with the team to develop assessments and ensure that metrics are in keeping with best practices in program evaluation (e.g., Teaching and Learning Centre).

Describe the performance indicators that will be used to determine success (e.g., number of trainees that successfully find positions in academic, public or private sector; number of applications received from women/Indigenous/international students; total number of trainees). Explain how and when these will be measured.

Describe the indicators that students' skill sets have increased and how this will be evaluated (e.g., compare trainees' skill assessment form upon entry into the program with their skills assessment at end of program). What would this skills assessment form look like (e.g., rank of current ability to carry out skill-based tasks).

Describe the indicators that students' expectations are being met by the program and how this will be evaluated (e.g., students will be asked to describe their expectations at start of program and be asked to complete a personal evaluation of their experience at end of the program).

Explain when workshop and course evaluations will be held. Explain how feedback will be sought from students participating in rotation and internship programs (e.g., a Performance Evaluation from supervisors at end of training period).

4. INSTITUTIONAL SUPPORT

Describe support from member departments Dean(s), Graduate Studies, VPR (with attached letters of support). Explain how the program goals align with SFU Strategic Research Plan and SFU Vision.

Describe the existing programs offered within SFU's Graduate Studies, Teaching and Learning Centre, Career Services, etc. that are available to students.

5. RECRUITMENT STRATEGIES

How will the training program be advertised (e.g., developing a brochure to distribute at international conferences, developing a program website, listservs, professional society bulletin boards). Specifically explain how recruitment will be targeted to minority groups (e.g., direct advertising to Indigenous groups).

6. LONG-TERM SUSTAINABILITY

Explain how elements of the program will be sustained after CREATE funding period. Describe any commitments from partners and internal depts/faculties to continue activities after program ends. Will graduate course continued to be offered? Will team work with Advancement Officers within faculties to seek endowments?