

REX PROGRAM

MENTOR MANUAL



UNDERGRADUATE RESEARCH OPPORTUNITIES

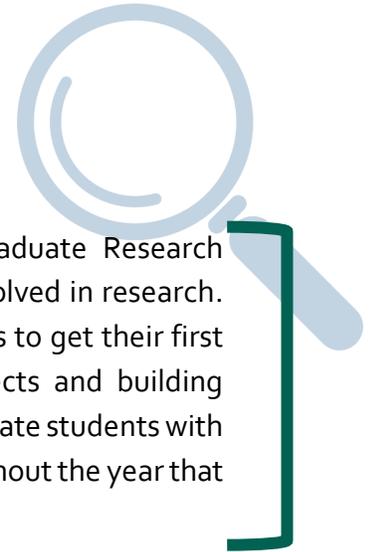


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The Research Experience (REX) Program: An Introduction



The Research Experience (REX) program was created by Undergraduate Research Opportunities (URO), a UBC AMS club dedicated to helping students get involved in research. The primary purpose of the program is to provide an opportunity for students to get their first taste of research by fostering important skills in designing research projects and building meaningful connections between students and mentors. REX pairs undergraduate students with a graduate student or postdoctoral fellow to develop a research project throughout the year that can be presented at a conference or published in a journal.

What Is a REX Mentor?

As a REX mentor, you are a guide and resource who shares your research and education experience to help pave the way for undergraduate students to succeed at UBC and beyond.

Mentors will be matched with a small group of undergraduate students (typically 2-4 students), to collaboratively create a research project that can be presented at a conference or potentially published in a journal. You will supervise the project and provide guidance and feedback for students' research process, from formulating a research question to writing a proposal and abstract to creating the final research poster.

The REX program is flexible in that the mentor and mentee(s) can decide together the scope of research and how it will take place. Here, we offer some guidelines and suggested project deadlines based on several years of feedback and successful projects from past years.

Roles of a REX Mentor

- **Resource** — teach and advise students in areas of research and the process of research
- **Supporter** — encourage respectful conversation and respond to your mentees' needs
- **Coach** — help mentees develop their research project to give them a first taste of research



REX mentors are expected to either approve research questions and project timelines or provide students with a proposed study project and timeline. During the REX program, mentors should check in with students about the literature review process, the research question, abstract write-up, research proposal, presentation and other key points during the REX program as needed.

What Is a REX Mentee?

A REX student can be any undergraduate student, from any faculty. In 2017-18, 66% of REX students came from the Faculty of Science, 15% from the Faculty of Arts, and 10% from the Faculty of Applied Science. Despite the majority of our students being from Science, the REX program is reaching out to a more diverse population every year.

REX students are likely to be very new to research. Most would consider our students at a disadvantage, being younger and less familiar with the basic concepts of research, but they are also brave, passionate, and ready for change—as expected from a group of students willing to jump into research at such an early age. They have the heart of a researcher, already showing their eagerness to learn and explore the unknown.

What Is a REX Project?

REX projects are driven primarily by students' interests and initiative. Students formulate a research question, derive a hypothesis from the question, and develop a research protocol to test the hypothesis. Students conduct all these steps with guidance from mentors. URO provides workshops to aid students in acquiring a better understanding of some research skills in order to contribute more fully to the project. Your guidance as the students' mentor will be the most important piece of their learning. The students' project will be in an academic field you have identified to us as within your expertise, so your advice will be the most specific to your group's project.

Students begin their projects by conducting a literature review, and mentors can contribute to this by guiding students toward important papers that will establish the current state of knowledge for them. Though students should be somewhat knowledgeable about your



field, it is likely that they will need guidance about recent developments or techniques that are currently in use.

Most projects conclude with the presentation of the students' work in the form of a poster presentation at an undergraduate research conference, generally the Multidisciplinary Undergraduate Research Conference (MURC). Certain departments and clubs on campus also host annual undergraduate research conferences which students could present at.

There are cases of REX students being provided the opportunity of being permitted to either assist in a research project or conduct their own research in the mentor's workplace (e.g. laboratory, clinical research office). However, no such outcome is required to be provided by mentors or promised to prospective REX students as part of participating in the REX Program.

If you are interested in capitalizing the REX Program mentor experience by leveraging it as a student recruitment selection process, this can certainly be done. Historically, mentors have used REX as an avenue of research assistant recruitment in two ways. Mentors have allowed their students to learn about or collect data for their on-going research project(s) as the students' REX project itself, or, alternatively, following the academic year and completion of the REX research project, the mentor assesses the REX student as a prospective research assistant based on their performance throughout the program.

The Final Product

Generally, REX groups produce a poster or oral presentation that will be presented at the ***Multidisciplinary Undergraduate Research Conference (MURC)***. The poster must include all the basic aspects of a research poster, such as introduction/background, hypothesis, and experimental design/methods. The results section is optional, as many of our REX projects are research proposals and do not collect data due to financial limitations. An oral presentation would follow a similar format and should be under ten minutes in length. We encourage groups to come up with creative ways to simulate data collection or analysis processes if desired. In the past, groups have provided anticipated results, analyzed data provided by the mentor, and utilized computer simulations in presenting data.

An abstract must be produced and submitted to MURC in late January and posters will be due mid- to late-February. For more information, please refer to the MURC website.



The REX Experience

Benefits

Mentoring will be a positive and enriching experience for both mentors and mentees. In addition, participants in the program receive certification upon completion.

For the Mentor

- Give back some of the support and inspiration you have received throughout your undergraduate and professional career
- Maintain a connection to UBC and the undergraduate research community at UBC
- Contribute to efforts to build a stronger industry and community
- Support the future of your field or industry by fostering the next generation of leaders
- Gain mentorship experience
 - Not only will your role as a mentor affirm your professional competence, but it will also be an opportunity to build your leadership, communication, and management skills*
- Meet the right students
 - Students who are selected to be part of the program are driven, eager to learn and immerse themselves in research; URO acts as a filter to find the right students to provide infrastructure and advancement in your research and career goals*
- Opportunity to reflect on your own experience and your research journey
- A genuinely rewarding experience
 - Make meaningful connections with mentees and know that you have made a positive impact on their lives*

For the Mentee

- Receive an introduction into the research and professional world
- Start building a professional network
- Opportunity to get involved in research and present your work at a conference or publish in a journal
- Develop and enhance professional and transferrable skills
- Acquire advice on research, academic, and career experiences
- Explore new ideas and areas of interest
- Gain clarity on career, academic, and personal plans



Expectations

One of the best aspects of the REX program is that it is flexible — mentors and students can decide on how the research experience and mentor-mentee relationship will work. We do have some minimal expectations, outlined here.

Throughout the year, we will be checking in with students and mentors to ensure that expectations are being upheld. **Certification of participation in REX will only be granted if both mentors and mentees put in the effort and cooperation expected of them.**

For the Mentor

- Spend at least four hours per month building the mentoring relationship
- Set expectations with students for how and when you will contact each other
- Help your students identify and set goals, track progress, and make changes as needed
- Approach the mentoring relationship with an open mind, professionalism, and respect
- Support students' professional and personal development
- Respond to all communications in a timely manner
- Maintain and model professional behavior, and define it if needed
- Communicate any problems with the mentoring relationship to the URO REX Committee at rex.uro.ubc@gmail.com

You are not expected to:

- Have all the answers for your mentee
- Initiate all contact with your mentee

For the Mentee

- Spend at least four hours per month building the mentoring relationship
- Respond to all communication in a timely and professional manner
- Set specific goals for the mentoring relationship with mentor and group members, and commit to them throughout the year
- Provide feedback to REX regarding progress in the program
- Be appropriate in their requests of their mentor
- Be receptive to suggestions and feedback
- Communicate any problems with the mentoring relationship to the REX Committee at rex.uro.ubc@gmail.com



The REX Process

The Matching Process

- Mentees are matched with mentors based on mentee and mentor preferences
- After attending the mandatory orientation sessions, mentors are required to submit their profiles by **August 31st, 2018**
- Students can search through the mentor profiles and select their top 5 mentors; their applications are due by **September 30th, 2018**
- The mentor selects their top student choices between **October 7th and October 14th**
- Matching results will be announced by **late October**

Mentor Profile

****DUE AUGUST 31st, 2018****

- Two parts:
 1. 200 words max. about your research
 2. 400 words max. about what you want to do with your mentees
- Provide link to webpage (if possible), and 2-3 citations for further background reading
- Include enough information for undergraduates to understand your research
- If there are special circumstances, such as only being available for consultation via Skype, please mention this here
- If you have a specific research project you would like your mentees to work on, you can mention it in your profile

EVENT: Meet Your Potential Mentor/Mentee

****Mid-September****

- Students will receive an e-mail after all the mentor profiles have been posted about their REX application form
- This event will be combined with the Mentee Info Sessions so that students can meet potential mentors in an interview-style setting
- Mentors are invited to attend this event in early September — space is limited to about 30 mentors over the course of two days



Student Application

****Due September 30th, 2018****

- Application answers: "What interests you about this mentor's research?"
- Students may choose to suggest projects they are thinking of doing or have already undertaken
- Mentors receive responses from all students who applied to work with them in a document several days after mentee registration closes
- Mentors should pick their top 10 mentees within a week (will be submitted through a form)

Once a Match Is Made

- Mentors are expected to initiate contact with their mentees and arrange a time to meet as a group
- We encourage the student to send an introductory e-mail to the mentor and their peer group, but mentors should take the lead on coordinating a meeting time and place
- If there is no response within a week, please contact URO at rex.uro.ubc@gmail.com

The First Conversation

We strongly suggest that you have a conversation early on in this relationship in-person, over the phone, or via Skype. This personal interaction will go far in creating a connection and setting up a good foundation for your relationship. Here are some guidelines for the conversation:

- Voice your **excitement!**
Sharing your enthusiasm will help reassure your mentee that you are committed to making the relationship succeed
- Build **rapport** with each other by asking questions about their background and experiences
Remember, you have UBC and your curiosity/passion for research in common, and that is a great place to start!

It is important at the beginning of the relationship to talk about **expectations and goals** for the REX program. Make sure to either start this dialogue in this first conversation or set up another time to do so. You can use our REX Mentorship Agreement and Goal-Setting Sheet, which can be found in [Appendix A](#) and [Appendix B](#), or on the Resources page of our website.



Mentor of the Year

The REX Committee presents a “Mentor of the Year” award to a mentor who not only fulfills the expectations of the REX program, but surpasses them, providing their mentees with an unforgettable research experience.

Mentors are nominated for Mentor of the Year by their mentees at the end of March. The REX Committee reviews the nominations and announces a winner and runners-up in early April. Mentors of the Year receive a reward and special certification from the REX program.

The Research Project

Project Goal: Proposal-type research project to be presented in poster or oral presentation form. The presentation will be geared towards the general public at MURC in late March.

****NOTE:** “Deadlines to REX” are the deadlines set by our program. These dates are intended to help the students manage their time wisely and prevent procrastination. “Deadlines to MURC” are the tentative deadlines set by MURC (more information and specific dates should be released by December 2018, on the MURC website: <https://students.ubc.ca/career/career-events/multi-disciplinary-undergraduate-research-conference>). **Students who fail to follow the MURC deadlines will not be able to present at MURC.**

CONDUCTING A LITERATURE REVIEW

Deadline to REX: Nov. 23rd

Students should be encouraged to explore areas of your field that interest them, as well as to keep track of their literature for the final poster/paper.

- Mentors might want to provide suggestions and feedback as to how they would approach a literature review and provide links to key papers which pertain to the research question. To encourage active learning, mentors may suggest that students focus their literature review on answering certain questions (decided by the mentor) and highlighting or sharing key findings from their literature review.
- The goal of this step is to provide your students with enough knowledge of your field that they can ask a novel research question.

Once a research questions is chosen (see below), mentees conduct an increasingly focused literature review to find scientific literature pertaining to the research questions and to determine which methods have been/could be used to collect and analyze data in the field of study.



SELECTING A RESEARCH QUESTION

Deadline to REX: Nov. 26th

We recommend that you have a research project and question that students can pursue. In previous years, we found that many groups find it difficult to decide on a research question which is of interest to everyone in the group. Thus, we recommend that mentors provide additional guidance by recommending activities and projects at the start of the program.

Students may develop the research question based on their mutual interests or may help with projects assigned by the mentor. The mentor's role here is to help students narrow down the research question to something feasible for an average research group. Both REX and MURC encourage creative and imaginative projects, and this should be prioritized over feasibility. As a general rule of thumb, any project goes, as long as the technology exists and it could be completed in the duration of an average PhD.

Elaborate research questions will usually require much more work for your students. The more complicated a question is, the more research they will need to do to demonstrate to the MURC adjudicators that it is feasible.

CHOOSING THE RESEARCH METHOD

Deadline to REX: Dec. 22nd

The bulk of most REX projects is the literature review. We encourage students to propose a feasible experiment based on their research in their poster or oral presentation, but do not expect participants to have collected or analyzed their own data (though we encourage this for very active groups, if feasible). The methods submitted here can be theoretical but should be reasonable to be conducted by a graduate student within their years of study.

ANTICIPATING RESULTS

Deadline to REX: Jan. 11th

Most REX projects will not include results, but some students choose to write about anticipated results. This section will talk about and discuss the significance and meaning of either supporting or opposing evidence for your hypothesis. Anticipated results should be based on informed inferences and previous cited research.

If the mentor feels comfortable and/or if it is applicable, mentors may choose to provide their own data for their mentees to analyze and present.



WRITING AN ABSTRACT

Deadline to MURC: Late January

All students are required to write and submit a proposal-type abstract to MURC if they wish to present. More info and submission available at: <http://students.ubc.ca/career/murc/present>

PREPARING THE FINAL RESEARCH PRESENTATION

Deadline to MURC: Late February

The abstract submitted in January will be reviewed and return to the group around the beginning of February. Students can choose to present their research project via poster OR oral presentations.

- If you and your mentees decide to present with posters: MURC participants will get their posters printed for FREE! The deadlines for free printing posters will be approximately 2 weeks before the conference. Please check our newsletter and the MURC website for updated information.

MURC takes place in Mid-March. Students presenting with posters will have the posters put up already by MURC. Refer to the MURC website for more information on the format and timeline.

Past Project Examples

Father involvement in HIV-related care and antiretroviral (ARV) medication adherence in South Africa (Anita Bal, Bianca Yeung) – 2014 MURC poster presentation winner

<http://www.uroubc.ca/wp-content/uploads/2014/12/HIV-Infected-Infants.pdf>

The Effectiveness of Dabigatran in Treating Alzheimer's Disease (Harani K. Ramasamy and Tom Cheng) – 2013 MURC poster presentation winner

<http://www.uroubc.ca/wp-content/uploads/2014/12/Harani-R.-Poster.pdf>

The Byzantine Pilgrims of St. Stephen's Monastery: Understanding Historical Migration through Strontium and Oxygen isotopic Analysis (Hannah Guo, Sophia Ly) – 2013-2014 REX poster

<http://www.uroubc.ca/wp-content/uploads/2014/12/Byzantine-Pilgrims.pdf>



REX Resources and Support

Office Hours

Office hours are provided by URO's Student Engagement Committee (SEC), and are available for students to ask questions, voice their concerns, and receive feedback through one-to-one consultation.

To learn more about office hours, please visit <http://www.roubc.ca/researchofficehours/>

Workshops

Workshops are hosted by REX periodically to better prepare and assist either mentors or students with their research project. The workshops available for this year are:

- How to Be a REX Mentor
- Understanding Research Questions
- Performing Literature Reviews
- Reading Research Papers
- Writing an Abstract (*hosted by MURC*)

Monthly Newsletters

URO will be sending out a newsletter to all URO students at the beginning of each month. The newsletter will announce opportunities, resources, and updates. Profiles of projects and/or mentor/mentee highlights may also be featured. A section of this newsletter will be dedicated to REX events and deadlines.

In addition, REX will be sending out periodic emails to inform participants of events and deadlines.

URO Website

The REX page of the website will hold information and resources for mentors and mentees, including a calendar, guidelines, reminders, and links to registration forms. Please check the website regularly for updates, as it will be an important method of communication between the REX Committee and REX participants.



Timeline Thank you!

- Aug. 2nd **EVENT:** REX Mentor Info Night
Aug. 27, 28th **WORKSHOP:** "How to Be a REX Mentor"
Aug. 31st **DEADLINE:** Mentor registration (including mentor profile)

SEPTEMBER

- Mid-Sep. **EVENT:** Mentee Info Night and Meet Your Potential Mentee/Mentor
Sep. 30th Mentee Application Closes

OCTOBER

- Oct. 7th Mentors receive applications from students
Oct. 14th **DEADLINE:** Student rankings submitted by Mentors
Oct. 24th Matching Completed — REX Groups announced
Oct. 30th **WORKSHOP:** "Research Questions and Literature Review"

NOVEMBER

- Nov. 5th Second round of matching completed
Nov. 6th **WORKSHOP:** "How to Read a Research Paper"
Nov. 26th **DEADLINE:** Submit research question to REX
Nov. 27-29th **EVENT:** Mentor-Mentee Mingle

DECEMBER

- Dec. 22nd **DEADLINE:** Complete methods section

JANUARY

- Mid Jan. **WORKSHOP:** "Writing Abstracts" hosted by MURC
Late Jan. **DEADLINE: Submit Abstract to MURC**

FEBRUARY

- Early Feb. MURC abstracts reviewed and returned
Early Feb. **EVENT:** Pizza Peer Review Night
Late Feb. **DEADLINE: Submit Poster to MURC**

MARCH

- Mid Mar. **Multidisciplinary Undergraduate Research Conference**
Mar. 31st Mentor of the Year Nomination Survey Due

APRIL

- Early Apr. **EVENT:** Mentor Appreciation Week
Apr. 5th Mentor of the Year Announced



We want to express our deepest gratitude for your participation in the URO Research Experience Program. This program would not be possible without your commitment and enthusiasm.

This guide will evolve with the REX Program. As we work together throughout this year, we welcome your suggestions for improving our written materials as well as our program. Your participation in this process will help the REX Program become a best practice model for UBC and other universities.

If you have any questions or concerns, please do not hesitate to contact us at rex.uro.ubc@gmail.com.

Ana Ivkov
Research Experience Program Co-Chair
Undergraduate Research Opportunities

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Research Experience Program Co-Chair
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Appendices

The following appendices are meant to provide guidance in dealing with some of the challenges that frequently arise during the REX program. Communication between mentors, group members, and URO is essential to a successful REX project. We encourage groups to meet frequently, discuss their schedules early, and suggest that any difficulties are reported to URO as soon as possible. We work hard to provide mentees and mentors with the best possible experience, but much of the program's success depends on the mentor/mentee relationship.



Appendix A: REX Mentorship Agreement

To get the most out of your REX experiences, URO strongly recommends that you talk about the expectations and goals both the student and mentor have for the mentoring relationship. Commit to the communication plans discussed and decided upon by the mentor and mentee. Renegotiate as needed.

Addressing expectations: How will the relationship work?

1. Meeting together: How will we meet together?
 - In Person
 - Skype
 - Phone
 - E-mail
2. Frequency of interaction: How often would we like to meet/interact?
 - Once per week
 - Every other week
 - Once a month
3. If an e-mail/voice mail is received, we will respond within:
 - a. 24 hours
 - b. 1-2 days
 - c. 3 days
 - d. Other: _____
4. If we cannot make an expected meeting, how will we get in touch?

5. When will we meet/talk next?

Agreeing on goals — What do you hope to gain from the relationship?

1. What are the mentee's goals for mentoring relationship?



2. What are the mentor's goals for mentoring relationship?

3. What are some initiatives and support we can both take to help achieve these goals?

If one party is unresponsive at any point in the relationship, initiate contact. If the mentor/mentee does not respond after multiple attempts, please do not hesitate to contact the REX Committee.



Appendix B: Goal Planning Sheet

Setting goals at the beginning of the REX relationship is critical because it gives direction to the relationship and informs the mentor how to better support their mentee(s). Remember that goal setting is a process, meaning that the priorities of the mentee can change and evolve. A skill that successful goal setters have is knowing when to change or set new goals.

Creating SMART Goals

SMART is:	Action:	Consider:
Specific	Specify how goals will be accomplished	What specifically am I trying to accomplish?
Measureable	Create criteria for how to achieve a goal, or to measure success in completing a long-term goal	How can I measure whether or not I achieve my goal?
Action-Oriented	Result-driven actions to be taken	What concrete results or skills will I have as a result of my time and energy?
Realistic	Strive for attainable goals, considering resources and constraints relative to the situation	Is the goal realistic?
Timely	Allow a reasonable time frame to complete each goal	By when do I want to accomplish the goal?