

PHYSICAL GENOMICS FELLOW COMPETITION ACADEMIC YEAR 2019-2020

The Center for Physical Genomics and Engineering (CPGE) is committed to training the next generation of leaders and contributing to diversity in engineering. As part of this effort, CPGE is awarding two fellowships to exceptional students with a deep interest in pursuing a doctoral degree in a physical genomics-related field. Proposed projects should bridge molecular biology, bioengineering, physics, optics, chemistry, and medicine and promote joint research between the McCormick School of Engineering and Applied Sciences and other Northwestern University Schools.

Physical genomics Fellows will be awarded a full-tuition scholarship and a stipend at the level of their home graduate program for two quarters. Each Fellow is eligible for up to \$1,000 support for presenting their work in the form of a poster and/or oral presentation in a scientific conference or meeting relevant to the outcome of the project. These funds will be administered by CPGE and can cover conference registration and travel costs. All awarded funds must be used during the 2019-2020 academic year.

ELIGIBILITY:

Students enrolled in any academic program associated with The Graduate School (TGS) at Northwestern University.

At the time the fellowship begins, the Fellows must have completed their first year as graduate students at Northwestern University. Fellows supported by external funding are eligible to apply as long as the research project period (and funding) do not overlap.

Fellows must be mentored by at least one faculty affiliated with CPGE with a record of productivity and mentorship in the fields of interest. Research must be conducted with at least one [CPGE faculty member](#).

Applicants will be selected based upon the relevance of their academic achievements and scientific interests to CPGE's Physical Genomics program.

PHYSICAL GENOMICS FELLOW APPLICATION DEADLINE

2019-2020 deadline to submit full applications for the 2019-2020 academic year:
September 1, 2019 at 5 PM (CST)

REVIEW PROCESS AND NOTIFICATION DATES

CPGE leadership will review the applications. Students and advisers will be notified via e-mail by September 15, 2019.

Ideal proposals will clearly demonstrate the following elements:

- Innovation and novelty of proposed research

- Clear objectives, a detailed timeline, anticipated results and measurable outcomes
- Research methods that are sound and feasible within the scope of the program

SUBMISSION PROCESS

E-mail all required materials (listed below) to physicalgenomics@northwestern.edu. Your application will not be complete until all documents, including both recommendation letters, are received. All components are due on the same deadline as the application.

IMPORTANT NOTE: It is the responsibility of the applicant to ensure the minimum number of recommendation letters are submitted by the deadline.

Do not include materials other than those requested. Applications must include all required materials and adhere to all format restrictions, including page, font and format restrictions. These instructions are intended to ensure a level playing field for candidates across disciplines. Applications that do not comply with these instructions will not be reviewed.

REQUIRED SUBMISSION MATERIALS

Please submit the required materials in the following order:

1. Completed application form. [Click here to download the form.](#)
2. Abstract: A short description in lay terms describing the candidate's interest and/or research in physical genomics, not to exceed 250 words
3. A one page, single-sided proposal describing your research plan if awarded the fellowship using a standard 11 point font. A second page is allowed for figures and/or references.

FORMATTING SUBMISSION MATERIALS

- Save as .pdf files prior to upload.
- Do not use long file names or special characters in file names.
- Double-space using a standard 11-point font.
- Set margins at 1" (top and bottom) and 0.5" (left and right sides).
- Do not exceed the maximum 1 page, one-sided limit.
- Do not exceed the maximum file size limit (4 MB).
- Do not include headers or footers.

ADDITIONAL MATERIALS REQUIRED

Two letters of recommendation. Both letters should address the following points: the qualities that set this student apart from others in the department or program; the significance of the scholarly research in physical genomics, and how the nominee would contribute to and benefit from this fellowship. Furthermore, the advisor letter should contain a statement acknowledging that he/she understands that the student will be involved with the Center for two quarters.

APPLICANT'S RESPONSIBILITIES

Prior to the deadline, the student applicant should contact his/her project advisors for assistance with developing a proposal and request his/her recommendation letter.

The research award allows the Fellow to participate in research independent of the regular curriculum for two quarters. Fellows are required to:

- Perform two quarters of research, in the research laboratory of their co-mentor.

- Present a research poster or give an oral presentation at the annual CPGE Symposium in late Spring 2020.
- Students are strongly encouraged to actively participate in CPGE's sponsored seminars, workshops and symposia.
- Update their mentors on the progress of their research work by submitting weekly reports and/or via in person meetings.

MENTORSHIP

Each Applicant will choose two mentors, one with a background in Biomedical Engineering/Physical/Computer/Engineering/Mathematics and the other in the life sciences. The primary mentor/host fulfills the role of a graduate thesis advisor while also ensuring the trainee is fully participating in program activities and completing requirements. The co-mentor in collaboration with the primary mentor provides insights and strategies for the trainee's project from an interdisciplinary perspective.

For more information about the Center for Physical genomics and Engineering, please visit:
<https://physicalgenomics.northwestern.edu>

PROPOSAL INSTRUCTIONS:

Completed application form. [Click here to download the form.](#)

- 1) Project Overview:
 - a) Principal Investigator:
 - b) Co-investigators/Collaborators:
- 2) Fellows ID and contacts
- 3) Project Title
- 4) Abstract – A short description in lay terms describing the candidate's interest and/or research in physical genomics, not to exceed 250 words in lay language

The following should not exceed 1 single-sided page. Please use a standard 11 to 12 point font:

- 1) Specific Aims (Approx. 1/2 page)
 - a) State concisely the goals and objective of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved.
- 2) Research Strategy (Use the following headings)
 - a) Significance & Innovation (Approx. 1/8 page)
 - i) Explain the importance of the problem to progress in the field that the proposed project addresses.
 - ii) Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.
 - b) Innovation (Approx. 1/4 page)
 - i) Explain how the application challenges and seeks to shift current research paradigms.
 - ii) Describe any novel theoretical concepts, approaches or methodologies, or instrumentation to be developed or used, and any advantage over existing methodologies, or instrumentation.
 - iii) Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, or instrumentation.
 - c) Approach (Approx. 1/2 pages)
 - i) Describe the overall development and/or experimental strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted.
 - ii) If the project involves early development, describe any strategy to establish usability, feasibility of the procedures, and address the management of any risk aspects of the proposed work.
 - iii) Include a detailed timeline.