UNIVERSITY OF MIAMI
INSTITUTE for DATA SCIENCE & COMPUTING

IDSC FELLOWS PROGRAM GUIDELINES

Collaborate, Grow, Stand Out

The vision of the IDSC Fellows Program is to inspire a new generation of leaders in data science to cross the traditional boundaries between disciplines. IDSC joins with University faculty to men-tor IDSC Fellows on how to best utilize University's cutting-edge advanced computing resources in their proposed research projects.

Eligibility

This is a prestigious designation awarded each year to four graduate or undergraduate (sophomore level or above) students. Applicants may be from any School or College at the University of Miami and must be in good standing

Program Overview

IDSC Fellows develop their computational skills and expand their research experience under the guidance of *two* mentors. Both mentors are faculty members: The first is the student's research advisor, and the second is identified by the IDSC Fellows.

All IDSC Fellows will have the opportunity to use the University's Advanced Computing facilities for their research, and to work closely with IDSC faculty and staff. No stipend is offered, but a small cash prize is awarded. Competitive applicants will have some experience in a computational setting and be able to outline an interdisciplinary project that they would like to pursue. Project details need not be clearly defined at the time of application, however, the disciplines that would come together in the project should be clearly stated. At the close of the academic year, IDSC Fellows present their work at a spring symposium.

For the 2023-2024 session, the application deadline is TBA . . .

Terminology

- **Student Finalists:** Students selected to proceed to phase I of the Program, where the student meets with their faculty research advisor and potential IDSC mentor to discuss the needs of the project, and to lay out a plan of action.
- **IDSC Fellows:** Students selected to proceed to phase II of the Program, where the project starts in full speed.
- **Research Advisor:** A faculty member, often from the student's home department, who operates as the domain expert. For undergraduates, this is often a faculty member with whom the student has worked in the past. For graduate students, this is the dissertation research mentor (a.k.a. Academic Mentor).
- **IDSC Mentor:** An IDSC-affiliated faculty member or IDSC staff member who operates as the computational expert. IDSC Mentors are more than a source of technical advice, they are themselves researchers who are there to dive deeper into the project, and to provide appropriate direction.

Program Structure

1. Selection of Finalists

Selection of the IDSC Fellows happens in two phases. In phase one, student finalists, along with their faculty research advisor, meet with the potential IDSC Mentor to discuss the needs of the project, and to lay out a plan of action.

2. Selection of IDSC Fellows

After this meeting takes place, and if a good match has been identified in terms of the potential IDSC Mentor's expertise, the student automatically passes on to phase II, where the project starts in full force.

3. Launch Event

IDSC will host a launch event to introduce the Fellows to IDSC and IDSC to the Fellows, and to share some background and the plan of action that has been decided for the project. Fellows will be expected to present a 3-minute outline of their prospective project at this event.

4. Checkpoints and Fellow Gatherings

IDSC will be reaching out every few weeks to make sure everything is on track. IDSC will also invite all of the current year's Fellows to informal Fellows Program gatherings at least twice during the Program year. One of the benefits of the Program is that the Fellows will expand their network beyond their disciplinary connections; these program gatherings are intended to facilitate that.

5. Workshops and Other Training Opportunities

While making progress on their projects, Fellows will be invited to attend any IDSC-hosted workshops, Lunch & Learn Seminars, invited-speaker seminars, symposia, and conferences as they arise. Attendance is not compulsory, but it is encouraged, particularly in the cases where there is a direct benefit to the project.

6. IDSC Fellows Symposium (Closing Event)

Fellows will be expected to present their work at the "IDSC Fellows Symposium" in April. Fellows will be asked to prepare a 10-minute presentation (with a maximum of 10 slides) for this closing event. Further details will be provided at least two weeks before the symposium. A networking reception will follow, with invited guests from across the University and beyond. Certificates of completion and cash prizes will be awarded.

7. Continued Engagement

The IDSC Fellows are part of the IDSC family even after the Program conclusion. Although no official mechanism is in place, it is our sincere hope to maintain contact with and support our IDSC Fellows, particularly as they enter the next phase of their careers.

Program Guidelines and Roles

IDSC Fellow Guidelines Fellows are expected to: Conduct a research project for the duration of the Program, enroll in appropriate courses, coordinate with their mentors, and approach IDSC faculty and staff for access to software or HPC facilities as needed.

During phase I when the student is a finalist, all three parties should be present (the Student Finalist, the Research Advisor, and the IDSC Mentor). The goal of the first meeting should be:

- To refine the definition of the project
- To lay out a plan of what there is to do
- To explicitly outline the specific contributions of each party to the project.

If any missing pieces are identified (skills, resources, etc.), a plan should be made for how to fill them in. IDSC is here to provide any computational resources that the project needs.

Undergraduate Fellows are encouraged to talk to their department about using their IDSC Fellows project to enroll for research and writing credits within their departments, thus earning credits and possibly becoming eligible for *summa cum laude* honors, or, fulfilling research requirements of their major. Undergraduate Fellows conclude the Program at the end of that academic year's spring term.

Graduate Fellows are expected to work on a defined project that is within the scope of their graduate research thesis project. Their own research advisor or principal investigator is required to be one of the mentors, and they will be provided with an IDSC Mentor according to their cross-disciplinary interests and/or research needs. IDSC Graduate Fellows also conclude the Program at the end of the spring semester, but they will be given the opportunity to continue their work over the summer, if needed.

All Fellows are responsible for setting up regular, recurring meetings with both of their advisors. Furthermore, it is the student's responsibility to devote the time needed for the project to be successful. The workload should be equivalent to one 3-credit course, and an appropriate amount of time must be dedicated to the project every week.

Applicants are encouraged to suggest an IDSC mentor—either from our website or by previously having met an IDSC faculty member—but the final decision of IDSC mentor assignment will rest with the Steering Committee. Appointment of the Fellow is contingent upon the success of finding an IDSC Mentor. The Committee has strategies in place to ensure that an IDSC Mentor is successfully identified.

Advisor Guidelines The IDSC Mentors will guide the Fellows through the design, management, analysis, interpretation, and communication of their research. It is the responsibility of the Fellow to use that guidance in pushing the project forward. The intention of the Program is to train the Fellow in *research*, and thus the program is designed to be soft-directed. The Fellow will develop the ability to: problem-solve, self-motivate, and develop their critical and creative thinking.

Either advisor (i.e. the Research Advisor or the IDSC Mentor) has the freedom to limit the scope of the project as they see fit. It is extremely important that both advisors ensure that *all parties* are acknowledged and credited appropriately for their contribution, particularly in the case where they meet authorship criteria for publication.

In terms of tangential skill development for the IDSC Fellow outside of the Program, the IDSC Mentors will consult with the Research Advisors to direct the Fellows towards any training opportunities that might help them, and to involve them in lab meetings and other activities of their research groups. The Research Advisor is responsible for guiding the Fellow towards research or writing credit courses that might be applicable.

Application Process, Materials, and Timeline

Applicants are required to complete an online Application Form reached accompanied by a transcript, a CV, and, in the case of graduate students, a support letter from their academic mentor.

The Steering Committee will meet within one week of the closing of applications to choose the IDSC Fellows. The announcement will be emailed to offices of Undergraduate Research, Graduate Office (UM, Med Sch, RSMAS, CoE, CAS), and to student groups at CoE, CAS, Med School, and RSMAS. Media Relations will help publicize it internally (NEWS@TheU, etc.), and via student media.

Selection Criteria

The selection criteria are:

A. Student must have computational skills sufficient to get started on the proposed project.

B. The proposed project integrates ideas from *more than two* disciplines, one of which must be new to the student.

C. Graduate students should have a well-formulated, achievable research question that is in line with their academic mentor's letter of support.

D. Graduate students need a support letter from their academic advisor or PI.

E. Application must be complete, and must be well written, well organized, and thoroughly thought out.

F. Previous research experience is not requisite, but is an advantage.

G. Student must be in good standing with the University.

Deadline for 2023-2034 applications will be announced shortly . . .