BIDS-TP
Department of Computational Medicine & Bioinformatics 100
Washtenaw Ave, Palmer Commons # 2017
Ann Arbor MI 48109-2218

Biomedical Informatics & Data Science Training Program (BIDS-TP)

Call for Fellow & Trainee Nominations

MEMO: Call for BIDS-TP Fellow (funded) and Trainee (unfunded) Nominations
TO: DCMB, CCMB, and MIDAS Faculty
FROM: Ivo D. Dinov, Program Director
Maureen Sartor, Associate Program Director
DATE: June 15, 2021

In 2021-2022, the BIDS Training Program will recruit **4 Fellows** (fully funded by the Program) and up-to **5 Trainees** (fully engaged, but independently funded) pre-doctoral students enrolled in biomedical, informatics, and data science doctoral programs and mentored/advised by DCMB, CCMB and MIDAS faculty. Successful *Trainees* can later apply for *Fellowship* slots. BIDS-TP Fellowships will cover pre-candidate or candidate tuition, stipend, and GradCare for up to 2 years, renewable in one year increments. Home academic unit (department, school, college) cost-shares any tuition shortfall.

About BIDS-TP: The BIDS-TP program represents a unique collaboration between the Department of Computational Medicine and Bioinformatics (DCMB) and the Michigan Institute for Data Science (MIDAS). Feeder graduate programs with eligible pre-doctoral trainees include DCMB and MIDAS doctoral students from engineering, mathematics, statistics, public health, and information sciences. The overarching goal of the BIDS-TP is to train a cadre of data-savvy, computationally-skilled, and highly-motivated biomedical scholars in an intellectually-stimulating environment using an effective competency-based curriculum. All BIDS-TP students are trained in collecting, managing, processing, interrogating, and analyzing large amounts of complex high-dimensional biomedical information with rigor and transparency.

The Program will support professional networking, practical career mentorship, and career opportunities to promote the next generation of biomedical and health data science leaders. The strong, interdisciplinary, and trainee-mentor tailored curriculum facilitates trainee's growth, employability, and positioning to contribute to the NIH mission to discover, model, understand and treat complex human disorders.

Curriculum Requirements: The BIDS-TP curriculum requires all trainees to complete the add-on graduate data science certificate (GDSC) program (https://midas.umich.edu/certificate/), actively participate in BIDS-TP workshops, attend weekly seminars, and enroll in a short-course on biomedical informatics, health analytics, or computational data science. Didactic course requirements include completing 12 credits of core courses and additional 6 credits of electives, see BIDS-TP Website (https://www.bids-tp.umich.edu).

Eligibility: US citizens or permanent residents are eligible for Fellowship support, and all doctoral students are eligible for Traineeship slots. The BIDS-TP student dissertation project must be focused on developing new methods, building reliable tools, or addressing important medical and health applications using informatics, computational, and data science techniques. Advisors/co-mentors must have active research, development, and education programs that are funded to advance biomedical, informatics, and data sciences, and must undergo the MICHR Mentoring program in the first year, if not already completed.

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Nominations: Email a single PDF file with the information below to Julia Eussen (jneussen@med.umich.edu) by **Due Date July 10, 2021** (annually April 1 starting in 2022). BIDS-TP Executive Committee will review all nominees for eligibility and make offers and funding decisions based on candidate qualifications, mentors' research, and match with the BIDS-TP goals. *We strongly encourage nominations of trainees who are members of traditionally underserved groups, as well as nominations of students with disabilities.*

Nomination Process: BIDS-TP Executive Committee will meet in July-August to review all nominations and select Fellows (funded) and Trainees (independently funded). BIDS-TP faculty mentors may nominate pre-candidate doctoral students by submitting the following information by the **due date**.

1. Nomination Form (see below).
2. Letters of nomination from student mentor(s) summarizing the applicant's qualifications, background, and aspirations, along with any information pertinent to the decision-making process. Describe the relevance to biomedical informatics, computational health analytics, data science, and the nature of the research dissertation problem, if known. Nomination letters are limited to 2 pages.
   - New Incoming UM Doctoral Students
     - For *incoming direct Bioinformatics* students, request a nomination from the BGP Directors, Burmeister/Sartor.
     - For *incoming PIBS Bioinformatics students* – eligible for Trainee appointments that may transition to Fellowships next year, request a nomination from BGP Directors, Burmeister/Sartor.
     - For *all other incoming students* (e.g., Data Science) – eligible for Trainee appointments that may transition to Fellowships next year, request a nomination from your specific graduate program Director (and inform MIDAS Program Director, Dinov).
   - For Current/Continuing UM Doctoral Students, please coordinate with your main advisor and select a potential BIDS-TP co-advisor.
3. Nominee statement of research (limited to 1 page) including an abstract, references, career goals, and relevance to BIDS-TP. No more than 1 figure and 1 table are allowed. Focus the statement on biomedical informatics and data science. Explicitly indicate student commitment to complete all BIDS-TP requirements.
4. CV/Biosketch of the nominee (2-page limit).
5. One or Two additional letters of recommendation (may use original letters of recommendation to graduate school).
6. Complete copy of the nominee's Rackham graduate application.

Note: Faculty sponsors who are not yet members of DCMB, CCMB or MIDAS should submit their applications to join CCMB[1] and/or MIDAS[2] at the same time of submitting the BIDS-TP student nomination. All BIDS-TP Faculty Mentors commit to active participation in BIDS-TP activities.

- Submit a single PDF file including all nomination components to Ms. Julia Eussen (jneussen@med.umich.edu) by the due date. Filename should be: *BIDS_TP_2021_<Name>.pdf*.
- For questions, comments, or clarifications please email bids-program@umich.edu.

[1] https://medicine.umich.edu/dept/dcmb/center-computational-medicine-bioinformatics
[2] https://midas.umich.edu/affiliated-faculty/

BIDS Training Program Activities

All BIDS-TP predoctoral students are required to take and satisfactorily complete (min grade B-) the 4 core courses (12-credit hours) as well as two additional 3-credit elective courses. Collectively, these 18 credits will provide trainees with a blend of fundamental mathematical and statistical knowledge, biomedical and health applications, and data science techniques needed to work at the interface of bioinformatics, health analytics, and translational sciences. All required and elective courses are offered every year, most by BIDS-TP faculty instructors.

Tutoring for core and elective courses, by graduate teaching assistants, is available to trainees, as needed. Students that may need remediation courses (e.g., linear algebra, bioinformatics) are encouraged to undertake appropriate Summer boot-camps, short courses, or prerequisite classes. Based on prior coursework, core courses may be waived by the Executive Committee (EC). For example, some mathematics trainees may waive math foundation classes or biostatistics classes, whereas biostatistics students may waive some statistics courses. All trainees must discuss with their advisors the most appropriate individual curriculum plans, given their specific backgrounds and scholarly interests. In addition to regular coursework, all trainees have opportunities to participate in MIDAS and DCMB short courses, weekly seminars, summer programs, and annual symposia (examples are posted on the website). All BIDS-TP events and activities are electronically announced to all trainees and participating faculty via emails and the BIDS-TP website.

BIDS Training Program Requirements

Fellow and Trainee Responsibilities:

In addition to participation in the core courses and program activities, trainees will fulfill the following:

- The dissertation committee will include at least one BIDS-TP faculty mentor in addition to the main advisor.
- Provide an annual progress report to the BIDS-TP and other reporting information requested by the Program evaluator (CRLT) or required by the funding agency (NIH).
- After their first year in the BIDS-TP Program, Fellows and Trainees agree to serve as senior peer-co-mentors for future BIDS-TP students.

Faculty Mentor Responsibilities:

In addition to ensuring that the BIDS-TP trainees fulfill their obligations to the Training Program, the faculty mentors are expected to participate in BIDS-TP events, complete the MICHR mentor training program, as well as participate in Program enhancements, activities, and evaluation.

See the separate **Individual Development Plan (IDP) & Annual Progress Report** form.

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Fellow and Trainee Nomination Form

About the Mentors

Name(s) of Mentor(s): _____
Mentors' Academic Unit (Affiliation): _____
Mentors' Emails: _____
Mentors' Phone numbers: _____
Mentors' Departmental **accounts administrators** (name, e-mail, phone): _____
_____

About the Nominee

Name of nominee:_____ **Fellow** (funded): ____ or **Trainee** (unfunded): ____
UMID#:(if known)_____ (mark one *or* both)

Academic Unit (Department/Graduate program/School): _____
Topic of Dissertation Project: (if applicable) _____

Year matriculated into UM graduate program: _____
E-mail address of nominee: _____
Nominee(s) telephone number(s): _____
Citizenship/residence status: _____

Feeder Program	____ Bioinformatics (DCMB)
	____ Data Science (MIDAS)

Past or Current Support by other training programs at UM, indicate program name and duration:
_____

Optional Nominee Meta-data

(please try to complete these fields, which are required by funding agency)

Check all that may apply about Nominee:
_____ Has experienced educational, socio-economic, or cultural disadvantages (_____)
_____ First generation in your family to attend higher education
_____ Attended a Title 1 high school
_____ Raised in a single parent household
_____ Had to overcome obstacles such as discrimination (_____)
_____ Other _____

Gender: Male_____ Female_____ Other_____
Race: Hispanic____ African American _____ Asian____ Caucasian____
Native American____ Middle Eastern_____ Other _____

Proposed Individual Curriculum Plan

Include the *expected* **semester/year** the Nominee has completed, or plans to complete, the following courses. All 4 core courses and at least 2 elective courses are required.

Core Courses

Biomedical Informatics

Selection/Term	*Core Courses*
	Bioinf 529 (Bioinformatics Concepts and Algorithms) – Winter
	Bioinf 580 (Intro to Signal Processing and Machine Learning in Biomed Sciences) – Winter

Data Science

Selection/Term	*Core Courses*
	HS 650 (Data Science and Predictive Analytics) – Fall
	EECS 505 (Computational Data Science and Machine Learning) – Fall and Winter

Elective Courses

Selection/Term	*Elective Courses*
	Stats 425/426
	Biostat 601/602
	Bioinf 501 (Mathematical Foundations of Bioinformatics)
	Bioinf 523 (Introductory Biology for Computational Scientists)
	Biostat 601 (Probability and Distribution Theory)
	Biostat 602 (Biostatistical Inference)
	Stats 425/Math 425 (Introduction to Probability)
	Stats 426 (Introduction to Theoretical Statistics)
	Math 571 (Numerical Linear Algebra)
	Stats 503 (Applied Multivariate Analysis)
	EECS 545 (Advanced Machine Learning)
	LHS 610 (Exploratory Data Analysis for Health)

Additional courses

Selection/Term	*Additional Courses*
	PIBS 503 (Research Responsibility and Ethics)
	Bioinf 504 (Rigor and Reproducibility (R&R) Training)
	PEERRS Responsible Conduct in Research (RCR)