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# What BTP can do for You

- **Build your professional network**
  - Close interaction with faculty and industry professionals & peers across departments and programs
- **Develop your skills as a research professional**
  - Unique annual and monthly activities
  - Coursework (and earn a Certificate in Biotechnology)
  - Industrial internship
- **[Potentially] gain freedom in the design of your PhD research**
  - Independent source of funding for your time & training



# BTP Commitment to Diversity, Equity, and Inclusion

- The Biotechnology Training Program is committed to promoting excellence in graduate education and research.
- **We believe that having different voices at the table means hearing different points of view, which makes our program stronger.** As an essential part of our mission, we strive to create an environment that values all aspects of diversity including race or ethnicity, religion, gender identity, gender expression, sexual orientation, nationality or place of origin, disability, neurodiversity, and diverse life experiences.
- We believe in providing access and opportunities equitably to all members of the community and valuing all voices.
- BTP leadership, faculty, and trainees take actions that promote recruitment, inclusion and retention.
- BTP is committed to taking anti-racist actions within our program, and to helping our trainees and preceptors to take such actions in general. We commit to continual self-evaluation, striving for improvement, and collaborating with our affiliated graduate programs, labs, and departments and Northwestern to pursue these goals.

To learn more about BTP's program outcomes and activities related to Diversity, Equity, and Inclusion, and related resources, [please visit the BTP Diversity, Equity, and Inclusion website.](#)

Written and committed as a collaboration between trainees & leadership

# Two modes of participation and support

- **NIH Trainees (10 slots)**
  - Rising second-year PhD students in BME, ChBE, Chemistry, IBiS, or MSE
  - US citizens or permanent residents
  - Two years base stipend and tuition
  - \$300 for conference, etc. and \$1,000 for research per year
- **Cluster members (5 slots + self-funded)**
  - **Any year and any NU PhD program**
  - Two quarters base stipend and tuition during a 1-year period
  - Same activities, but internship is encouraged (not required)
  - NIH-eligible Cluster members can apply for one year of NIH Trainee support as a rising third-year PhD student

Applications due July 1<sup>st</sup> each year

# BTP Monthly Activities

- **Biotechnology Seminars:** Wednesdays at noon with food\*
  - Weekly in spring; monthly the rest of the year
  - Speakers from a wide range of companies and research areas
  - ***Small group meetings/meals with the speakers***
  - Trainee interests drive speaker selection
  - *Opportunities for trainees to invite and host speakers*
- **Research in Progress Meetings**
  - Practice your communication skills to a diverse audience
  - Get feedback and suggestions from different perspectives
  - Learn about many areas of biotechnology research
- **Networking and Social Events**
  - Get to know colleagues in departments across Northwestern
  - Refreshments to enhance the discussion



# BTP Annual Activities

- **BTP Retreat** in August/September
- **Biotechnology Practicum** in August (2019: Data Visualization and Communication; 2020: Statistics in Science and Engineering; 2021: Entrepreneurship; 2022: Consumer Goods; 2023: Data-driven Precision Medicine)
- **NU Biotechnology Networking Reception** Spring
- **Biotech Nexus** in winter
- **Biotechnology company site visit** – Recent *AbbVie, LanzaTech, Argonne National Labs, J&J, Valent*
- **BTP-focused IDP** discuss with research preceptor first, discuss with BTP Program Directors (spring)
- **Program evaluation survey and focus group** with Searle Center - spring
- **Steering Committee meeting** with *one elected trainee member*

# Industrial Internships

- Internships provide trainees the opportunity to obtain first-hand experience in industrial research or development
  - NIH Trainees are required to pursue an industrial internship before degree completion; during appointment preferred
  - Cluster Trainees are encouraged to pursue an industrial internship
- Work with your mentor on internship timing; they may also have industry contacts related to your research
- BTP Directors and alumni can help you find an internship
- Can maintain student status and health insurance during internship

# Industrial Internships





# Student Committees

- Purpose
  - Trainee committees provide opportunities for trainees to have substantial contributions to BTP activities and direction.
  - Leadership opportunity: Champion a cause, innovation, or activity related to biotechnology research and/or practice
- Current Committees
  - Social & Retreat Committee
  - Alumni, Site Visit & Networking Committee
  - Practicum Committee
  - Seminar Speaker Committee

# Course Requirements

- **Advances in Biotechnology** (ChBE 478)
- **Biology Fundamentals Courses: 2 courses:**
  - Provide broad coverage of fundamental biological principles, such as cell biology, biochemistry, molecular biology, systems biology, synthetic biology, and quantitative biology.
  - Build upon or complement prior training---student having completed prior coursework in biological fundamentals should take graduate-level courses when possible, and students entering with less training in biological fundamentals may satisfy this requirement with advanced undergraduate coursework. IBiS students are required to take Quantitative Biology (IBiS 410) as one of the courses that satisfies this requirement. Students who have not taken Biol\_Sci 315 or 390 at NU, or an equivalent course as an undergraduate, should take one of these foundational courses as one of their Biological Fundamentals courses.
- **Electives: 3** biotechnology-related classes (many options)
- **Responsible Conduct in Research: 1** of the following classes:
  - IBiS 423 (Ethics in Biological Research)
  - GEN ENG 519 (Responsible Conduct of Research)
  - CHEM 519 (Responsible Conduct of Research Training)
  - DGP 494 (Colloquium on Integrity in Biomedical Research)
- **Responsible Conduct in Research refresher course (after 4 years)**
  - IBiS 519 (Ethics in Biological Research – Refresher Course)
- **Rigor & Reproducibility in Research** (IBiS 421 or DGP core R&R training)

*These classes fulfill the requirements for the **TGS Certificate in Biotechnology***



# Application to BTP

- Online portal: <http://www.biotechtraining.northwestern.edu/application/>
- **Deadline: July 1<sup>st</sup>**
- Single application (except for personal statements/letters) for
  - Molecular Biophysics Training Program
  - Biotechnology Training Program
  - CLP Predoctoral Training Program
- **Applying to all potential programs of interest is strongly encouraged**
- Can apply to be considered for traineeship, cluster, or both
- Can also apply if you are self-funded (e.g., have a fellowship)
- Preceptors can apply for BTP affiliation for newly appointed trainees
- Components (see website for more detail)
  - 3 page (max) statement discussing motivation for participation in BTP (**including participation before applying**), goals of research, and how you **plan to meet program requirements (including courses and internship)**
  - Copy of research rotation report (not required for IBiS/DGP students or Cluster-only applicants)
  - Copy of grad & undergrad transcripts
  - Letter of support from your advisor
  - *No GRE scores considered*
  - Short CV, including honors, presentations, research experience, publications, etc.
- Applications are reviewed using a rubric by the BTP Steering Committee, which includes representatives of all participating graduate programs.



# Key Next Steps

- **Research Rotations (starting now)**
  - Required for NIH Trainees (not required for Cluster)
  - **Two rotations (at least 4 weeks) prior to preceptor selection**
    - Rotation forms: [single form used by CLP & BTP](#)
- **Peruse BTP website for activities, details, and course requirements/guidance**
- **Attend BTP events throughout the year**