**TRAINEE RETENTION PLAN**

The rates of UNC graduate student retention and graduation for students who enter through the BBSP umbrella are very high. Since the first matriculating class of 2008, PhD retention is **more than 90%**. Moreover the average time to degree is 5.5 years, and this metric includes the BBSP year and rotations (time from matriculation through date of degree conferral rather than dissertation defense). All of the degree programs associated with MiBio require at least one first-author original research publication in press at the time of graduation, and most students publish multiple papers as first and co-authors. Thus, the vast majority of BBSP-entering students progress through their degree programs in a timely manner and graduate with substantial research accomplishments.

To assist students in their degree progression despite the unavoidable hurdles of experimental frustrations and personal life events (illness, family troubles, relationship changes, etc.), *MiBio fosters a supportive community of peers and mentors*. The program also connects students with the variety of resources provided at UNC for professional development, mentoring, routes to discuss concerns, and mental wellness.

***Peer support****.* Students build self-efficacy and community in addition to scientific knowledge through the MiBio-X course. They work together to select seminars and journal articles to discuss. MiBio trainees also enhance their sense of belonging through group activities such as annual symposium planning and implementation. MiBio participants also encourage one another through constructive criticism in the MiBio Center for Scientific Review to improve their written proposals. In the most recent year, one trainee (Voos), organized *mock exams for trainees to prepare for their oral qualifying exams.* The entire cohort gave feedback on practice talks and provided valuable new perspectives. They asked questions about rationale, experimental design, identified potential gaps, and commented on the overall presentations. These mock reviews were timed to occur before each student’s degree program exam, and all students were ultimately very successful. This activity reduced the anxiety that accompanies qualifying exams and further integrates the cohort.

***Discussing and reporting concerns****.* All PhD students have a primary advisor (or pair of co-advisors), a thesis committee, a PhD program director, a program administrator, and a department Chair who can provide advice about concerns that arise. MiBio serves as additional sources of advice. Students who have concerns about their work environment, navigating friction in the lab, or communication problems have multiple resources, and MiBio leaders are one of those resources. Students can also speak with the Directors in the Office of Graduate Education UNC Ombuds office in complete confidence, file a report with the UNC EOC, Title IX office, human resources, or Carolina Ethics line either anonymously or they can identify themselves for follow-up. The Office of Graduate Education and the School of Medicine will launch an additional portal for reporting in mid-2022 that includes a completely anonymous option managed by a neutral third party but with the ability to communicate with the reporter through a “report key.” A designated leader with expertise in coaching and mediation then responds to the report in conjunction with any relevant UNC offices (EOC, HR, etc.).

***Wellness****.* All UNC students have free access at no charge to UNC Counseling and Psychological Services (CAPS). CAPS provides individual therapy sessions and multiple group-based wellness programming and workshops (e.g. dissertation support group, graduate student support group, graduate students of color group, and many others). In 2020 CAPS launched the Multicultural Health Program which centers the needs Black, Indigenous, and Students of Color. In 2018, the OGE partnered with the Office of Medical Education to fund a *dedicated therapist* who specializes in both biomedical PhD and MD students. This embedded therapist is a licensed clinical social worker and is part of CAPS but has knowledge of the unique stressors on PhD students. Students can receive brief therapy (~10 sessions), and if they require ongoing therapy, the counselor helps them engage with a therapist in the Chapel Hill community. The program has been very popular, and OGE monitors wait times to ensure there is sufficient capacity. MiBio trainees are directed to these resources by the program when appropriate.

**Underrepresented Student Retention and Graduation Summary**

Gratifyingly, soon after the institution of OGE and the IMSD, UR student success rapidly matched non-UR students (see graph below). Moreover, the overall UNC student success rates for both UR and non-UR students (>90%) – measured by the percentage of the matriculating class that has graduated with a PhD or is still on-track to graduate – are *substantially higher than reported national average*s. According to reports from the Council of Graduate Schools, “Doctoral Initiative on Minority Attrition and Completion,” which analyzed STEM doctoral students who matriculated between 1992/1993 and 2011/2012, the 7-year completion rate for all UR life science students was just 50-58%. The 2008 PhD Completion Project report indicates that the degree completion rate for all life sciences students is 59-69%. The vast majority of UNC PhD students complete their degrees, UR students complete at close to the same rate as their non-UR peers, and most BBSP-affiliated PhD programs require at least one first-authored publication in press by the time of graduation. In fact, in its last degree-completion rankings (December 2020), *Diverse Issues in Higher Education* ranked *UNC Chapel Hill 2nd nationally for PhD completion by African-American scholars in the biological and biomedical sciences, 8th nationally for PhD completion (in these fields) by Hispanic/Latinx scholars, and in the top 20 nationally for total minority PhD completion in the biological and biomedical sciences*. Additionally, in 2020 UNC Chapel Hill ranked fourth nationally for doctorates granted in the life sciences, and in the top 20 for total doctorates completed by Black or African Americans scholars and American Indian or Alaska Native scholars (2021 Survey of Earned Doctorates; National Science Foundation and National Center for Science and Engineering Statistics)

**Retention of UR trainees.** UNC hosts an NIH-funded R25 Initiative for Maximizing Student Development (IMSD, 5R25GM055336) to enhance the training of UR students in biomedical graduate education. The IMSD program provides activities and support services that are available to all UR students from admissions through post-graduation. This program also provides a supportive community along with continuous assessment and response to an individual student’s needs.

* IMSD meets with UR applicants during their preview and interview visits to address their unique questions and introduce them to the broader IMSD community of scholars.
* IMSD seamlessly integrates all first year IMSD students into the BBSP program and provides them with extensive professional development training in presentation and writing skills and life coaching/career counseling to aid their transition to graduate school.
* IMSD assesses the needs of each student and addresses issues they are having. IMSD organizes academic coaches for students having difficulty in their graduate classes, needing to strengthen their critical analysis skills and scientific background in a new discipline, or for students needing help in preparing for written or oral qualifying exams.
* IMSD generates Graduation Progression Plans (GPPs) for all program participants. These collaborations between IMSD staff, IMSD students, and their research advisors involve assessment of the student’s skills by the student and advisor. These cooperative efforts foster collaboration among the research mentor, student, and research advisors welcome the continued support of IMSD programming and services for their students
* IMSD programming includes quarterly community-wide social gatherings and specialized group meetings. Two series provide a venue for IMSD students to present their research within the community (Student Research Talks series) and expose the IMSD community to successful UR scientists in a variety of career paths (Diversity Mentor series). Through the Career Advancement series, IMSD leaders provide career guidance and advice to IMSD students. Additionally, monthly meetings with the first year IMSD students enable IMSD staff to closely monitor student progress in courses and labs and provide personalized advisement and support to augment student success.
* Additional annual programming includes the IMSD Biomedical Research Symposium which showcases IMSD student research to the UNC community through oral and poster presentations. The Holiday Dinner celebrates the year’s successes and student achievement while encouraging networking and strengthening intra-community ties. Finally, the IMSD Retreat provides unique professional development training that enhances the progress and competitiveness of IMSD scholars.
* IMSD has implemented a comprehensive evaluation plan that includes both internal and external evaluation of the program. Dr. Rebekah Layton, Director of Training Initiatives in Biological and Biomedical Sciences in the OGE, utilizes her specific expertise in program evaluation to assist in-house evaluation of the IMSD program including survey development and analysis. In addition to internal evaluation of our programming, the OGE contracts with Dawayne Whittington of Strategic Evaluations, Inc., as an external evaluator. Mr. Whittington has developed an evaluation plan that includes focus-group interviews with the students and their mentors.

**Plan for Predoctoral Students with Disabilities.** Once a student self-identifies as having a disability, we commit to providing academic and community support through IMSD, the OGE, and in conjunction with the Office of Accessibility Resources & Service (ARS), which works to ensure that the programs and facilities of the University are accessible to all students. Additionally, ARS determines reasonable accommodations, including resources and services to provide students with disabilities with equal access to the opportunities available to them at UNC to help them be as independent as possible. For example, ARS worked with the OGE to have a door installed in the BBSP office that would be accessible to current students who use a wheelchair. Additionally, in recent years, the OGE has worked with ARS and BBSP faculty to implement classroom and laboratory accommodations for a BBSP students living with physical and/or emotional disabilities, including the use of classrooms with new audio support equipment to assist hearing-impaired students. Students may also have learning disabilities, anxiety and eating disorders, and other mental health issues. The entire OGE staff is certified in Mental Health First Aid, a national program that teaches the skills to respond to the signs of mental illness and substance abuse. Dr. Dave McDonald, Director of Student Affairs for BBSP, and other OGE Directors often meet with students who are having difficulties. These individuals are extremely knowledgeable about the various resources on campus for students with mental health issues including UNC’s Counseling and Psychological Services (CAPS) which is available through Campus Health Services and free to all registered students. Additionally, the OGE has hired a Wellness Counselor to help support the mental and emotional health of biomedical graduate students. Off-campus professionals are also available to meet with students who prefer not to utilize on-campus resources.

**Transition to Research-intensive and Research-related careers.** The TIBBS program in the OGE maintains contact with UNC alumni from BBSP-affiliated programs with >90% coverage for those who earned degrees between 2000 and 2019 (n=1635). A database with career outcomes is posted in the form of an interactive visualization tool at the BBSP website under “Professional Development🡪career outcomes.” (See also Table 8A.). For all BBSP-affiliated programs, 86% of alumni since 200 are in research or research-related careers, and 6% are in primarily teaching roles.