University of Idaho

BIOINFORMATICS & COMPUTATIONAL BIOLOGY

Graduate Student Handbook

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TABLE OF CONTENTS

I. INTRODUCTION

Welcome to the Bioinformatics & Computational Biology graduate program at the University of Idaho! The BCB program is a university-wide, interdisciplinary graduate training program, offering several degree and certificate options in the fast-changing and diverse areas of bioinformatics. BCB brings together faculty from across the university and across disciplines, ranging from biology, agriculture, and medicine to mathematics, statistics, and computer science, to provide a supportive, interactive, and research-rich training environment for graduate study.

This handbook describes the curriculum and requirements for degrees and certificates in BCB, as well as the policies and general practices of the program. It is intended for prospective and current BCB graduate students at all stages as well as BCB faculty mentors, to serve as a guide to the key milestones on the road to earning a BCB degree. Every effort has been made to accurately reflect policies of the University and the College of Graduate Studies, but this document does not supersede any university-wide policies. You are encouraged to consult the appropriate source documents, such as the [General Catalog](), the [Faculty-Staff Handbook](), and the [College of Graduate Studies (COGS)](), for more information. The Graduate Handbooks of other departments, particularly the home department of the major professor, may also be valuable sources of information.

II. PROGRAM OVERVIEW

A. Degrees and certificates offered

The BCB program offers a range of degrees and certificates, designed to address the diverse goals of graduate students in bioinformatics:

Ph.D.: The Doctor of Philosophy in BCB is intended for those interested in training as independent research scientists in academic, government, or industry careers. The Ph.D. curriculum immerses students in all aspects of interdisciplinary, independent science, culminating in a dissertation that represents a significant contribution to their field. Ph.D. students are typically supported by a combination of research grant funding, fellowships, or teaching assistantships. Students are generally not admitted to the Ph.D. program without first identifying a member of the BCB faculty willing to serve as their major professor. Students may enter with or without a Master's degree, and the Ph.D. program typically takes 4-7 years.

M.S., thesis option: The Master of Science degree, thesis option, trains students for careers as research scientists in a wide range of career paths as a terminal degree, and it is also good preparation for a Ph.D. Thesis M.S. students work closely with a major professor to conduct a major research project and are typically supported by research grant funding or fellowships. Students are generally not admitted to the thesis M.S. option without first identifying a member of the BCB faculty willing to serve as their major professor. The thesis M.S. option typically takes 2-3 years.

M.S., non-thesis option: The non-thesis M.S. is intended as a professional degree for careers in bioinformatics, focusing primarily on coursework and skills training to gain a broad foundation of expertise. Non-thesis M.S. students are typically self-funded and are admitted to

the program based on their educational background and qualifications. The M.S. non-thesis option typically takes 2 years, or it can be completed as a 4+1 degree with a related U of I undergraduate degree.

      Certificate in BCB: The BCB certificate is intended for U of I graduate students in other degree programs who wish to gain experience and skills in bioinformatics to broaden their training and add a credential to their degree. The certificate requires only a set of courses to be taken during the student's graduate enrollment in a related field.

      Certificate in Professional Applications of Data Science: This certificate, available entirely online, provides rigorous training in the management, analysis, visualization, and communication of large data. It is intended for working professionals whose careers require new skills in data science, as well as U of I graduate students in other degree programs wishing to broaden their training in data science.

B. Training philosophy

      Because BCB students come from a wide range of backgrounds in biology, statistics, computer science, and other fields, the required curriculum has several components designed to ensure an interdisciplinary foundation of training as well as cohesion and interaction across cohorts of BCB students. The BCB approach to graduate education is a three-step process: building a strong foundation, gaining interdisciplinary depth, and engaging in cutting-edge research.

      Step 1: Building a strong foundation. Our curriculum is designed for a strong intellectual foundation across three focal areas: biology, mathematics and statistics, and computer science. This foundation is built around three core courses in these areas, required of all students in the degree programs and the BCB certificate. These courses provide a shared educational experience for cohorts of BCB students and the common language and understanding critical to interdisciplinary research. Advisory committees will also work with BCB students to build a background in foundational areas in which they may lack undergraduate training.

      Step 2: Gaining interdisciplinary depth. To expand the interdisciplinary range and allow students to personalize their training, BCB degrees include a wide selection of graduate-level coursework, workshops, seminars, and teaching opportunities that take advantage of the many areas of expertise across campus.

      Step 3: Cutting-edge interdisciplinary research. The BCB program is the graduate training component of a vibrant community of diverse, active and collaborative research ongoing at U of I. This is exemplified by the Institute for Interdisciplinary Data Sciences (IIDS) and the Institute for Modeling Collaboration and Innovation (IMCI), interdisciplinary institutes that foster much of the research of BCB faculty and provide a well-equipped research environment for BCB students. Students in the Ph.D. and M.S. degrees are directly engaged in interdisciplinary research of their own, while students across all of the BCB options benefit from the diversity of bioinformatics-related research at UI.

C. BCB program structure

      The BCB program has a Director, a Governing Board, and a Program Coordinator. The Director and Governing Board are members of the BCB faculty elected to 3-year terms, and

members of the Governing Board represent the major areas of the program (biology, mathematics/statistics, and computer science). Most decisions on admissions, curriculum requirements, or policy questions are made by the Director and Governing Board. The Program Coordinator is a university staff member, responsible for many aspects of program management and student support. Any BCB students or faculty members with questions about BCB policies, degree requirements, or any other issues or concerns are encouraged to contact the Director or the Program Coordinator. You can reach both of them using bcb@uidaho.edu.

D. Diversity

Biological problems cannot be solved without considering the diversity of organisms, and our capacity to solve these complex problems requires a diversity of people with a range of experiences, backgrounds, and perspectives. The BCB program welcomes and encourages participation of students of any race, ethnicity, cultural or socioeconomic background, gender identity or expression, sexual orientation, ability, religion, political ideology, or age. BCB is committed to the deconstruction of barriers to underrepresented or marginalized groups in bioinformatics and related scientific fields, and we strive to create an inclusive environment in which diversity is celebrated and individuals' whole identities are welcomed into the community. We treat each other with respect, provide and accept constructive criticism and support, and welcome each other's diverse perspectives as we all learn together.

III. DEGREE REQUIREMENTS

	Degree options			Certificate options	
Requirement	Ph.D.	thesis M.S.	non-thesis M.S.	BCB	Data Science
Major professor or advisor	Determined before admittance		Assigned on enrollment	-	
Committee	Assembled by end of 1st year, meet annually		No committee required		
Study plan	End of 2nd yr	End of 1st year		-	-
Core courses	BIOL 522 Molecular Evolution or BIOL 545 Phylogenetics MATH 563 Mathematical Genetics CS 515 Computational Biology: Sequence Analysis			INTR 509 BCB 520 BCB 521 BCB 522	
Depth courses	15 credits	9 credits	14 credits	3 credits	3 credits
Seminar	3 credits	2 credits	2 credits	-	-
Rotation/ internship	End of 3rd yr	-	-	-	-
Teaching	End of 4th yr	-	-	-	-
Proposal defense	5th semester	-	-	-	-
Research	BCB 600 30 credits	BCB 500 10 credits	BCB 599 5 credits	-	-
Final defense	Dissertation defense	Thesis defense	Research presentation	-	-

The BCB degree and certificate options have several requirements and milestones, summarized in the table above and described in more detail below.

A. Major professor or advisor

Ph.D. and thesis M.S. degrees: These are research-focused degrees, and the thesis or dissertation research is conducted closely with the major professor and primarily in the home department of the major professor. As a diverse, university-wide program, BCB cannot accept students into these degree programs without a major professor identified. Therefore, the major professor should agree to accept a prospective student prior to admittance to the program. The major professor must be a member of the BCB faculty. COGS requires that the major professor be approved before the end of the third semester for Ph.D. or the end of the first year for M.S., but it is strongly recommended to complete this process within the first semester in the program. Please complete the Major Professor/Committee Appointment form and submit to the BCB Program Coordinator.

The major professor will serve as primary advisor, chairperson of the advisory committee, and principal mentor throughout graduate training. The major professor, along with the student, is also primarily responsible for developing a plan for funding to support the student in the form of teaching assistantships, fellowships, scholarships, or research grants. Because BCB is a university-wide program, major professors are also responsible for identifying office space and any other logistical support for BCB students, typically through their home department. Two members of the BCB faculty may serve as co-major professors, and this is encouraged in the interdisciplinary spirit of BCB; however, justification is required to COGS for co-major professors using the Major Professor/Committee Appointment form.

Non-thesis M.S. degree: Students may be accepted to the non-thesis M.S. degree without first identifying a major professor. The BCB program, in consultation with the student, will identify a member of the BCB faculty to serve as major professor when the student enrolls in the program. Every effort will be made to identify a faculty member whose scientific interests align with the student. Students should complete the Major Professor/Committee Appointment form and submit to the BCB Program Coordinator within the first semester. The major professor will serve as primary advisor on choice of courses to fulfill requirements and other aspects of completing the degree. For non-thesis M.S. students, as a professional degree, there is no expectation that the major professor will provide research or stipend funding support.

The major professor may or may not serve as the responsible faculty for non-thesis research (BCB 599); non-thesis M.S. students are strongly encouraged to reach out to multiple faculty members during their first year in the program in order to identify potential opportunities to fulfill the non-thesis research requirement.

Certificates: Students in the certificate programs will not be assigned major professors. Students in these programs are encouraged to reach out to the Director, Program Coordinator, or any other BCB faculty for advice on which elective courses to choose. Current U of I graduate students adding a certificate to another degree will continue to work closely with the major professor on their primary degree.

B. Advisory committee

　　Ph.D. and thesis M.S. degrees: The advisory committee is an interdisciplinary group of faculty mentors who help guide development of the study plan and thesis or dissertation research, and who serve as valuable resources for all aspects of students' training. Students meet with their committee at least annually, and commonly work with one or more committee members on specific research projects. Working with their major professor, students should identify the members of their committee during their first year. Committees are designated with the Major Professor/Committee Appointment form, which is approved by the Director and the Dean of COGS. Any changes in committee membership during the student's tenure should also be agreed upon by the student and major professor and approved by the Director and COGS using the same form. Students are strongly encouraged to interact with multiple faculty and learn about their research interests and expertise before deciding on the composition of the committee.

　　The advisory committee includes at least four members, including the major professor who serves as chair of the committee. The committee must include at least one member representing each of the three BCB disciplines (biological sciences, mathematics/statistics, and computer science) and must include at least three members of the BCB faculty. The discipline areas for BCB faculty members are available on the BCB website. There is no specific requirement for an "external" committee member, but students are welcome to include faculty members from outside BCB or outside U of I if they can contribute to the student's mentorship and training goals. These external members should meet the requirements of COGS for external committee members, which includes having attained or exceeded the degree level that the student is pursuing.

　　Non-thesis M.S. and certificates: In these programs, students do not have a standing advisory committee.

C. Study plan

　　Ph.D. and M.S. degrees: BCB degree programs require a study plan to be completed, by the end of the second year for Ph.D. and the end of the first year for M.S. The study plan does not reflect all the courses or credits a student may take, but it should include all the requirements for the degree. Consult COGS guidance for designing and entering the study plan, rules for applying transfer credit, and all other university-wide policies on graduate degree requirements. All Ph.D. degrees require a minimum of 78 credits, of which at least 39 are earned as a degree student at U of I, at least 52 credits are at the 500 level or above, and at least 33 are credits other than BCB 600. M.S. degrees require a minimum of 30 credits, of which at least 18 are at the 500 level or above and at least 20 are credits other than BCB 500 for the thesis M.S. option.

　　Students should work closely with their major professors in designing their study plan. Thesis M.S. and Ph.D. students should plan to discuss their coursework and suggestions for their study plan, along with their prior educational background, in the first annual meeting of their advisory committee. After being submitted on the university system, the study plan will be approved by the Director and COGS. Changes to the study plan may be made at any time during the student's tenure, subject to the same approval process.

Full-time graduate students in the Ph.D. and thesis M.S. degrees should plan to register for at least 9 credits in the fall and spring semesters, and at least one credit during the summer session. These credits can reflect any combination of courses, seminars, and research credits (BCB 500 or BCB 600). Students may take as many BCB 500 or BCB 600 credits as they need if they wish to stay full-time during their graduate tenure (required for some teaching or research assistantship positions) and there is no limit on these research credits. However, note that COGS policy restricts the number of research credits that may be listed *on the study plan* to 10 credits of BCB 500 for M.S., and 45 credits of BCB 600 for Ph.D. The study plan does not need to reflect full-time student status.

D. Core courses

Ph.D., M.S., and Certificate in BCB: These programs require a similar set of three core courses, covering the three focal areas of BCB, each of which is offered in alternate years: MATH 563 Mathematical Genetics (odd-year fall); CS 515 Computational Biology: Sequence Analysis (odd-year spring); and either BIOL 522 Molecular Evolution (even-year spring) or BIOL 545 Phylogenetics (odd-year spring). These courses are designed with the expectation that BCB students enter the program with a wide range of backgrounds, but the major professor or committee may recommend preliminary courses to fill gaps before taking one or more core courses. Core courses can be taken at any time during a student's tenure, but it is *strongly recommended* that they are completed within the first 2-3 years. Because of the centrality of the core courses to the BCB program, substitutions for these courses will be given only in exceptional circumstances. Therefore, all M.S. students, and especially students planning on a 4+1 track in the non-thesis M.S. degree, should make plans early for how they can schedule these courses, and discuss any questions with the Director or Program Coordinator.

Certificate in Professional Applications of Data Science: The certificate has its own set of core courses, reflecting its unique focus and online availability: INTR 509 Introduction to Applied Data Science; BCB 520 Foundations of Data Visualization; BCB 521 Communicating with Data; BCB 522 Data Science Portfolio.

E. Depth courses

Ph.D., M.S., and Certificate in BCB: Each of these programs requires a number of credits of depth courses as shown in the Table above. Depth courses are courses at the 400-level or above that explore specific areas relevant to BCB students' training goals. These courses are required to span two broad areas: biological sciences and mathematics/statistics/computer sciences. Distributional requirements for these two broad areas are as follows: Ph.D., at least 6 credits in each of the two areas; thesis M.S., at least 3 credits in each area; non-thesis M.S., at least 6 credits in each area. While 400-level courses can count toward the depth course requirement, note that COGS policy requires at least 18 total credits at the 500 level (including BCB 500 research) for any M.S. degree, and at least 52 total credits at or above 500 level (including BCB 600) for any Ph.D. degree.

A list of possible depth courses is provided on the BCB website, but this is not intended to be exhaustive; courses on this list will be counted toward the requirement, but students are

also encouraged to explore other course options, as long as they are taught at a suitable level and fit within one of the two broad areas. Credits from targeted workshops, including BCB 524 Data Carpentries, may also be used toward the depth course requirement. Any number of these workshops may be completed, but note that COGS policy limits the total number of workshop credits to 3 that may be counted toward degree requirements.

Decisions on which courses may be used to count as depth courses, and the discipline area to which they belong, are made by the Director and Governing Board. If there is any question, students are encouraged to ask whether a particular course may be counted prior to enrolling in it. There is no time limit in which depth course requirements must be completed, but it is strongly recommended that the majority of depth and core courses be taken within the first 2 years for any degree.

Certificate in Professional Applications of Data Science: This certificate requires 3 credits of an elective course. Possible courses to meet this requirement are listed in the Catalog.

F. Seminars

Ph.D. and M.S. degrees: To ensure broad exposure to research discussions, these degrees require registration for 2-3 credits of seminars. This can most easily be accomplished by registering for BCB 501, offered every fall and spring semester. This covers the seminars hosted by IIDS and IMCI, and it usually includes a set of speakers invited and hosted by BCB graduate students. BCB students are *strongly encouraged* to invite speakers for this seminar series. Hosting speakers can be an excellent way to learn about other scientific research and build meaningful relationships with established scientists outside UI. Most faculty and researchers consider it an honor to be invited by graduate students to give a seminar.

G. Lab rotation/internship

The **Ph.D.** degree requires students to diversify their research and training experience by engaging in either a lab rotation or internship. A lab rotation involves working in the research laboratory of another faculty member at U of I, either within or outside the BCB faculty. An internship involves working outside U of I, for instance in a government research lab, a biotechnology company, or other environment, and it may involve activities other than research *per se*; for example, application of science to natural resources or public health policy may constitute an excellent training goal for the internship. Students are given wide latitude in designing this activity, but it must provide practical experience in research questions, methods, or environment outside the major emphasis area of their dissertation and outside the focus area of their major professor's research group. Students should work closely with their major professor and the advice of their committee to design their rotation/internship plan. The rotation/internship should ideally be completed before the end of the third year, especially if it will provide skills or experience that will contribute directly to the dissertation.

The rotation/internship should constitute the effort equivalent to a 3-credit, full-semester course, where each credit is approximately 3 hours per week through a semester, or about 45 hours total. However, it may be completed over the course of a full semester or

during a more intensive time period within a semester or during a summer. Prior approval is required for all rotations or internships, and students should describe their plan in either the [Lab Rotation Request form](#) or the [Internship Request form](#). This plan must be submitted to the BCB Program Coordinator and approved by the Director prior to the term in which the rotation/internship occurs. Students should then register for at least 3 credits of the appropriate course during the term in which they complete the rotation (BCB 506 Laboratory Experience in the Biological Sciences; BCB 507 Laboratory Experience in the Computational Sciences; BCB 508 Laboratory Experience in Mathematics or Statistics) or internship (BCB 598 Internship). Each of these options requires an instructor of record to be specified, who will report a final grade for the rotation/internship credits. For a rotation in a lab group at U of I, the faculty leader of that lab should be the instructor of record. For an internship outside U of I, the student should identify a member of the BCB faculty, such as a member of the committee, but not the student's major professor, to be the instructor of record for BCB 598. This faculty member should communicate directly with the student's supervisor(s) at the non-U of I entity, both before and after the term of the internship, to evaluate the student's training and accomplishments.

H. Teaching

The **Ph.D.** degree requires at least three credits of teaching experience, to be completed before the end of the fourth year. This is most easily accomplished by serving as a teaching assistant in the home department of the major professor, or in other teaching roles (for example, IMCI has often supported BCB students as teaching assistants in the Data Carpentries workshops). Students should register for 3 credits of BCB 597 Teaching Practicum during the semester in which they teach, by completing the [Teaching Request form](#) and submitting it to the BCB Program Coordinator prior to the start of the semester. Many BCB students may rely on teaching assistantship positions for funding support, even for multiple semesters beyond the one semester requirement. Ph.D. students need only register for BCB 597 in one of these terms to fulfill the requirement.

I. Proposal defense

The **Ph.D.** degree includes a proposal defense which serves as the qualifying examination for advancement to candidacy. The proposal defense should be completed before the end of the fifth semester. The proposal defense has three components:

1. Written proposal: This document should describe the proposed dissertation research in the format of a standard research grant proposal, such as one submitted to NIH or NSF. In other words, it should include at least: an informative title; background information and significance; specific aims (typically these correspond to proposed dissertation chapters); preliminary data; research methods; anticipated results; timeline; references cited. There is no page limit, but a 10-20 page document may be sufficient to capture the necessary detail. This written proposal should be submitted to the committee at least two weeks prior to the public presentation and examination.

2. Public presentation: The student will present their research proposal in a public, oral presentation, open to BCB faculty, students, researchers, and any others. The presentation should be approximately 40-45 minutes, and any audience member may ask questions at the end. The major professor, all members of the committee, and the BCB Director (or designee) must be in attendance; therefore, this presentation should be scheduled well in advance to ensure all necessary people can attend. Please coordinate with the BCB Program Coordinator to reserve a room and publicize the proposal defense.

3. Committee examination: The public proposal defense is followed by a closed-door examination by the committee. This examination may last up to two hours and must also be attended by the major professor, all members of the committee, and the BCB Director (or designee). Ideally, this examination occurs immediately after the public presentation; therefore it is ***highly recommended*** to reserve a 3-hour block of time to cover both the public and closed-door portions of the proposal defense. The BCB Director (or designee) will chair this exam, during which the major professor and committee members will question the student. Questions may ask the student to explain or justify specific research approaches or other aspects of the dissertation proposal, or they may address general knowledge in bioinformatics-related fields, reflecting the interdisciplinary spirit of BCB and the discipline breadth represented on each committee. The BCB Director will ensure that questioning is rigorous and fair, living up to the training ideals of the BCB program.

At the conclusion of the committee examination, the student will be asked to leave the room and the committee will reach a consensus on whether the student has passed the examination by successfully defending a scientifically sound proposal for dissertation research and demonstrating adequate depth and breadth of knowledge in their chosen fields of bioinformatics and computational biology. A three-fourths majority of committee members must agree that the student has passed the examination. The major professor will complete a [Report of Preliminary Examination and Advancement to Candidacy form](), which should be signed by all members of the committee and submitted to the BCB Program Coordinator. The committee examination may also be used as the annual committee meeting; in this case, a [Research and Curriculum Progress form]() should be completed and submitted to the Program Coordinator. If a committee decides that a student has failed the preliminary exam, the student will be given one more opportunity to pass. The second attempt should be scheduled no sooner than 3 months but no later than 6 months after the failed exam. If the student fails the second attempt, the Director and Governing Board may recommend removal from the program.

J. Dissertation or thesis defense
The **Ph.D.** and **thesis M.S.** degrees require a dissertation or thesis, respectively, which represents the culmination of independent scientific research conducted during the degree program. The dissertation or thesis defense is the final requirement before completing the degree, and it includes three components. Students should consult current [COGS guidelines]() for information on all the steps required, and prior to the semester in which they wish to graduate, students should make a plan for meeting all the relevant [deadlines]() in completing the steps below. This includes the [application to graduate]() submitted prior to the final semester.

1. Written dissertation or thesis. The **Ph.D. dissertation** or **M.S. thesis** is the written product of research conducted by the student during their graduate training. It is recognized that during all aspects of their research, BCB students may work closely with their major professor as well as other faculty mentors, fellow students or postdocs, or other collaborators. Nonetheless, the thesis or dissertation should primarily be the intellectual product of the student, and the student holds primary responsibility for drafting it with feedback from the major professor, committee members, and other mentors.

The thesis or dissertation is split into chapters, each of which should be equivalent to a scientific manuscript for which the student would be regarded as lead author. Students are encouraged to write their chapters with future submission to scientific journals in mind, in order to guide the scope and context for each chapter, and it is *strongly recommended* that students submit at least one of their chapters for publication prior to their defense. **Ph.D. dissertations** in the BCB program typically include at least three chapters, and **M.S. theses** typically include one to two chapters; however, given the diversity of sub-fields and types of research in which BCB students work, specific requirements for the number of chapters or the extent of work represented by a satisfactory dissertation or thesis are determined by each student's advisory committee. The scope and planning for the number and organization of dissertation or thesis chapters should be a primary focus of discussion at each of the student's annual meetings with their advisory committee throughout their time in the BCB program.

Students should consult COGS guidelines on specific requirements for the dissertation or thesis, formatting templates, and electronic submission through the ETD system. A final draft of the dissertation or thesis should be submitted to the advisory committee at least *two weeks* prior to the defense date, and students are encouraged to send drafts of any individual chapters to their committee as they are completed before this time.

2. Public presentation. Ph.D. and **thesis M.S.** students will present their dissertation or thesis research in a public, oral presentation. The presentation should last 35-45 minutes for M.S., or 40-50 minutes for Ph.D., and any members of the audience may ask questions. The major professor, all members of the committee, and the BCB Director (or designee) must be in attendance; therefore, this presentation should be scheduled well in advance to ensure all necessary people can attend. Please coordinate with the BCB Program Coordinator to reserve a room and publicize the final defense. The Request to Proceed with Final Defense form should be submitted to COGS two weeks prior to the defense date, and students should consult COGS deadlines for scheduling the defense.

3. Committee defense. The public defense is followed by a closed-door examination by the committee. This examination may last up to 1.5 (M.S.) or 2 (Ph.D.) hours and must be attended by the major professor, all members of the committee, and the BCB Director (or designee). Ideally, this examination occurs immediately after the public presentation; therefore it is *highly recommended* to reserve a 3-hour block of time to cover both the public and closed-door portions of the proposal defense. The BCB Director will chair this exam, during which the major professor and committee members will question the student. Questions may ask the student to explain or justify any aspects of the dissertation or thesis, or they may address general knowledge in bioinformatics-related fields, reflecting the general areas of expertise for which the student has been training. The BCB Director will ensure that questioning is rigorous and fair, living up to the training ideals of the BCB program.

At the conclusion of the committee examination, the student will be asked to leave the room and the committee will reach a consensus on whether the student has passed the examination by successfully defending a scientifically sound dissertation or thesis and demonstrating adequate depth and breadth of knowledge in their chosen fields of bioinformatics and computational biology. A three-fourths majority of committee members must agree that the student has passed the examination. The committee will then complete the Final Defense Report form, which is provided to the student by COGS prior to the defense. If the committee determines that the student has not passed the final defense, the student will have one more opportunity to pass. The second attempt should be scheduled no sooner than 3 months and no later than 1 year after the first attempt. If the student does not pass the second attempt, they may be dismissed from the program.

K. Non-thesis M.S. research presentation

Students in the **non-thesis M.S.** program will give a public presentation of their non-thesis research completed under BCB 599. This presentation will be 20-30 minutes in length and open to all BCB students, faculty, and any other attendees. It is typically given as part of the BCB 501 seminar series but may be scheduled in another setting. It must be attended by the student's advisor and the BCB Director (or designee). This presentation is typically given in the final semester, but it may be given at any point during or after completion of the 5 required BCB 599 credits. Upon successful completion of this presentation, the student's advisor will submit the Non-thesis Requirement Report to COGS.

IV. ACADEMIC PERFORMANCE AND ANNUAL REVIEW

A. Academic performance and good standing

Students in all of the BCB programs are expected to make steady progress toward their degree during their time in the program. Students should meet regularly with their major professor or advisor to assess their progress and update plans for coursework and other requirements no less than once per semester; students in the **Ph.D.** and **thesis M.S.** programs will typically meet much more often. University policy requires that graduate students maintain a grade point average (GPA) of at least 3.0 to maintain good standing. A student earning less than 3.0 GPA will be placed on academic probation. If they do not gain a 3.0 GPA in the next term they will be disqualified. If a student on probation earns a 3.0 GPA in the subsequent term but their cumulative GPA remains below 3.0, the student will remain on probation. For more information consult section L of the U of I Catalog.

A student may fail to maintain good standing in the program by failing to: maintain a sufficient GPA, successfully pass the proposal defense, maintain progress in thesis or dissertation research, make progress toward completing degree requirements, or maintain sufficient ethical or professional behavior. If these issues cannot be resolved by working with the major professor and advisory committee, the student may be considered for dismissal from the BCB program. Decisions on dismissal will be made by the Director and Governing Board, with consideration of any recommendations from the major professor. A student may appeal a

dismissal or request reinstatement from the [College of Graduate Studies](), following [university policies]().

B. Annual evaluation

      Ph.D. and **thesis M.S.** students are required to hold a meeting of their advisory committee at least once every academic year, at which they update their full committee on their progress toward completing all the requirements of the degree, and their progress in thesis or dissertation research. The major professor and all members of the committee must be present (in person or by videoconference) for this meeting. The meeting should be documented on the [Research and Curriculum Progress form](); this form should be filled out by the major professor, approved by all members of the committee at or shortly after the annual committee meeting, and submitted to the BCB Program Coordinator.

      Non-thesis M.S. students should meet with their advisor annually, typically in the spring semester, to complete an annual evaluation of their progress. This meeting should be documented using the [Annual Report of Progress and Performance form](), which requires signatures by the student, major professor, and BCB Director.

V. SAFETY AND INTEGRITY IN RESEARCH

      Research is a key component of the BCB program, and students will be directly involved in conducting a wide diversity of research at U of I. Safety and integrity in research are critical, and both the university and research sponsors, such as federal funding agencies, have important requirements that must be met. BCB students will conduct research with faculty mentors in departments across the university, and the major professor or research supervisor has the primary responsibility for ensuring that students have met all departmental, university, and funding sponsor requirements for training or certification that may apply to a student's specific plan of research, and that students gain keys, building access, office space, or anything else required. Students should work closely with their major professor and staff in their home department and consult [COGS]() and the [Office of Research Assurances]() for more information.

      The BCB program expects that students will exercise high standards of ethical and professional behavior in their interactions with their peers and all other members of the BCB and university community. BCB is not a competitive environment, and students are expected to be supportive and collaborative, offering constructive feedback and collegial discussion on each other's research and training. As scientists, BCB students must never engage in or tolerate professional misconduct, including plagiarism, falsification of research or data, or deception of any kind. Each of us in BCB is obligated to report professional misconduct to a supervisor or the Director as appropriate. Failure to maintain ethical or professional standards may result in removal from the program, as determined by the BCB Director and Governing Board.

VI. STUDENT CONDUCT AND CONFLICT RESOLUTION

A. Student conduct policies

All BCB students are expected to follow UI policies on student conduct and academic honesty. The University's Student Code of Conduct provides information on general student conduct policies and resolution processes. BCB students are expected to conform to university policies and high standards for academic honesty. Repeated failure of BCB students to adhere to university policies on student conduct or academic honesty may result in consideration of dismissal from the BCB program, as described in section IV above. Students that are aware of misconduct by others should discuss it with their major professor or the BCB Director.

BCB students engaged in teaching or mentoring of undergraduates are also expected to maintain high standards of academic behavior as instructors, treating students with respect and fairness and protecting their academic freedom and confidentiality. If BCB students observe evidence of academic dishonesty by a student or mentee, they should immediately discuss it with their major professor or teaching supervisor. COGS has helpful resources for BCB students serving as teaching assistants.

B. Conflict resolution

In the event of a conflict between a student and their major professor, fellow students, or other members of the BCB community, the student should consult the Director, a member of their committee, or any other faculty mentors. In any case of conflict resolution between a BCB student and their major professor, the Director will serve as mediator (if the Director is the student's major professor, a member of the Governing Board may serve as mediator). If a conflict cannot be otherwise resolved, students may request a hearing with the Governing Board. The Governing Board, with the Director acting as chair, will hear from both sides of the dispute before providing a written summary of their findings and recommendations on what actions, if any, should result. Students with concerns, including any concerns or conflict with BCB faculty leadership, may also contact other university resources including COGS, the Office of the Dean of Students, the Office of Equity and Diversity, or the Office of Civil Rights and Investigations.

C. Change of major professor

Ph.D. and thesis M.S.: Students in these BCB degree programs may switch to a different major professor or assign a co-major professor at any point during their tenure, if it is mutually agreed by the student, their current major professor, and the prospective new major professor. The Major Professor/Committee Appointment form should be completed and submitted to the BCB Program Coordinator. The new major professor will assume responsibility for overseeing the student's thesis or dissertation research, identifying funding sources, and other responsibilities described above.

In the case of a conflict between a BCB student and their major professor in which the student wishes to change to a new major professor, the student should contact the Director or members of their committee for help in identifying another member of the BCB faculty who could serve in this role. If another member of the faculty is willing to serve as major professor, the student may change to the new major professor with the approval of the Director and

COGS. However, because of the centrality of thesis or dissertation research to these degree programs, it is not possible for students to continue in the Ph.D. or thesis M.S. programs without a major professor willing to take on all the responsibilities described above. If there is not a member of the BCB faculty willing to serve as major professor and the conflict with the current major professor cannot be resolved, the student may be unable to continue in the degree program. In this case, the Director and Governing Board will work with the student and other resources at the university to identify other options in the best interests of the student.

Non-thesis M.S.: Students in this program may switch to a different major professor at any point during their tenure, either to identify a better fit in terms of research or training interests or to resolve any conflicts with the current major professor. Students may ask any other BCB faculty if they are willing to serve in this role or request the Director to assign a new advisor. The Director will appoint a new advisor, considering their research and training focus and the best interests of the student.

VII. GRADUATE ASSISTANTSHIPS AND SUPPORT

BCB students in the **Ph.D.** and **thesis M.S.** programs are typically supported by a combination of scholarships, fellowships, research grants to a faculty mentor, and/or teaching assistantships. Students funded in this way are university employees and should consult COGS and university policies on graduate assistantships. Because BCB is a university-wide program, research assistants (RAs) and teaching assistants (TAs) are typically appointed through the home department of the major professor, and specific policies of the home department will apply. The major professor and their home department will also be responsible for any logistical support, such as office space, keys and building access, computer resources, mailboxes, etc. Unfortunately, this means that there may be some unavoidable disparity in pay rates and other resources available to BCB students across campus. The BCB program will help facilitate assistantship appointments and other student support to the extent that it can. If any BCB student or faculty mentor believes that a student is neglected or not getting necessary support in their home department, equivalent to other graduate students in that department, please contact the BCB Director and Program Coordinator.

Students working as RAs are typically appointed at 20 hours/week. Pay rates and provision of tuition and fees will depend on the funding source and practices of the home department. TA positions for BCB students should be arranged through the home department of the major professor, or through university-wide programs such as IMCI, which supports TA positions in the Data Carpentries workshops. It has been standard policy that when a department allocates TA positions, BCB students of major professors in that department are given equal consideration to the students within the department's own degree programs. If a student or BCB faculty mentor is aware of a case where a BCB student is not given such equal consideration, please contact the BCB Director and Program Coordinator.

VIII. UNIVERSITY RESOURCES

The university provides a number of resources that may be helpful for BCB students. Many are available through COGS as well as the home departments and colleges of students'

major professors. The BCB program provides information in a Canvas page, open to all BCB students; please contact the Program Coordinator for access. BCB students are eligible for a number of [award or grant opportunities](#) across the university, and they also are eligible for other opportunities, such as small travel or research grants, through their home department or college. BCB students are strongly encouraged to participate in the rich array of intellectual activities of the university, such as research expos or symposia, graduate student organizations, seminars and other activities.