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</table>
BMBB Directors of Graduate Studies

Romas Kazlauskas, PhD
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Department of Biochemistry, Molecular Biology and Biophysics 140 Gortner Laboratory
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rjk@umn.edu
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TBA

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BMBB Student Representatives

- Kaylee Steen
- Amber Schoenecker
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6-155 Jackson Hall (Mpls) 625-6100 Fax 625-2163
6-160 Jackson Hall (Mpls) 624-3110 Fax 626-6140

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistant to the Head Grants Manager</td>
<td>Jeff Schaub</td>
<td>625-1166</td>
<td><a href="mailto:j-scha1@umn.edu">j-scha1@umn.edu</a></td>
</tr>
<tr>
<td>BMBB Websites Student HR/Payroll/Benefits</td>
<td>Sarah Dittrich</td>
<td>625-5179</td>
<td><a href="mailto:sdittric@umn.edu">sdittric@umn.edu</a></td>
</tr>
<tr>
<td>Front Desk</td>
<td>Elena Brown</td>
<td>625-6100</td>
<td><a href="mailto:brow3144@umn.edu">brow3144@umn.edu</a></td>
</tr>
<tr>
<td>Dept. Head Exec. Secretary</td>
<td>Ann Johnson</td>
<td>626-2127</td>
<td><a href="mailto:swans143@umn.edu">swans143@umn.edu</a></td>
</tr>
<tr>
<td>Grants/Proposals Lab Safety</td>
<td>David Okita</td>
<td>624-7107</td>
<td><a href="mailto:okita001@umn.edu">okita001@umn.edu</a></td>
</tr>
<tr>
<td>BTI Main Line 140 Gortner Lab</td>
<td></td>
<td>624-6774</td>
<td></td>
</tr>
<tr>
<td>BMBB St. Paul 140 Gortner Lab</td>
<td></td>
<td>624-7755</td>
<td>Fax: 625-5780</td>
</tr>
</tbody>
</table>
Student Requirements by Year

**Year 1**

**August**
- Itasca Orientation (MCDG 8920)
- MCSB Orientation

**Fall Semester**
- Student Orientation
- Register for classes (14 credits max)
- Take SETTA Test (if international)
- Keep cumulative GPA above 3.0
- Do Lab Rotations

**Spring Semester**
- Register for classes (14 credits max) including thesis credits (BioC 8888)
- Keep cumulative GPA above 3.0
- Finish Lab Rotations
- Choose Thesis Advisor before the end of your third rotation; turn in lab advisor contract to the Student Personnel Coordinator. If a fourth rotation is needed you must receive approval from the DGS and then inform the Student Personnel Coordinator

**Summer**
- Nominate preliminary exam Committee Members
- Written Review due August 30

**Year 2**

**Fall Semester**
- Register for classes (14 credits max) including thesis credits (BioC 8888)
- Keep cumulative GPA above 3.0
- Research Seminar Presentation BioC 8084 (make sure examination committee is present)
- Graduate Degree Plan form due mid-December
- Once Graduate Degree plan is approved submit your preliminary exams members online
- December 1st Summary of Written Preliminary Exam Topic Due

**Spring Semester**
- Submit first week of class Preliminary Exam member of list online
- Email the Student Personnel Coordinator a list of your committee members
- Feb 1st Digital copy of your preliminary Exam due to the Student Personnel Coordinator
- March 1 Decision of Prelim Committee
- April 1 Rewrite of Prelim due to the Student Personnel Coordinator via email if applicable
- May 1 Decision of Prelim Committee on rewrite if applicable
  (Rewrites and Oral Exam should be completed before July 1 to make sure any reservations are lifted before the Fall semester)
- Schedule Oral Exam (6 weeks within passing Preliminary exam)
- Schedule room with coordination of your exam committee
- All thesis credits and course credits should be completed by the end of your second year (4th semester)

**Summer**
- Teaching Assignments Announced (Year 2-4)
- Your Preliminary Oral exam must be completed before the 1st week of Fall semester of year 3
Year 3-4

Fall/Spring Semester

• Register for BioC 8444 (Advanced Doctoral Status) if you already have 24 credits of BioC 8888 (Thesis Credits)
• Teaching if assigned
• Fall/Spring Research Seminar Presentation BioC 8084
  (3 members of your Exam Committee must be present, it is your responsibility to tell your committee that you are presenting. Annual progress meeting should be held after your seminar. Online form should be completed before seminar.)

Year 5

• Submit Final Oral Examination Committee Online
• Print Graduation Packet from Grad School
• Register for BioC 8444 (Advanced Doctoral Status)
• Submit the signed Thesis Reviewer’s Report form to the Grad School and schedule the Final Oral Defense schedule online at least one week prior to exam
• Email Student Personnel Coordinator with the date of your defense, time, room, and title of your defense so your defense flyer may be created and emailed
• Final Oral Exam and Thesis Defense
• Return Final Oral Exam report no later than 1 working day following completion of final oral defense
• Notify DGS/Student Personnel Coordinator of termination of student status
• Submit application for degree to 160 Williamson Hall by the first business day of the anticipated graduation month (130 Coffey Hall, if on St. Paul campus)
• Copy of dissertation, abstract (signed by advisor), and Survey of Earned Doctorates due by last working day of the intended month of graduation to the Graduate School
• Give bound copy of thesis to Student Personnel Coordinator

*If you will be here beyond the end of Year 5, you must meet with your committee and request an extension or you’ll be removed from the payroll

GRADUATION!
Introduction

Welcome! This handbook for the graduate program in Biochemistry, Molecular Biology and Biophysics (BMBB) at the University of Minnesota serves as a guide for enrolled students and as information for others who are considering graduate work in this program. Most of the information that a University of Minnesota graduate student needs can be found on The Graduate School’s website (http://www.grad.umn.edu/). Some pages with important information include:

- Graduate Student Survival Guide
- Graduate Catalog
- Doctoral Degree Requirements

This Graduate Program Handbook for Biochemistry, Molecular Biology and Biophysics provides information specific to the BMBB program relating to a student’s appointment and to the operational and administrative aspects of the program. Specifics on the Molecular Cellular and Structural Biology Joint First-year (MCSB) Program can be found in the MCSB First Year Handbook (if you need a copy, see the Personnel Coordinator).

Program Goals and Priorities

The BMBB Graduate Program is an interdisciplinary program that is supported by the College of Biological Sciences and the Medical School of the University of Minnesota. Students in the program will develop expertise in Synthetic Biology and Biotechnology, Molecular Biology, Metabolic and Systems Biology and Chemical and Structural Biology. The program provides a broad research-based education. The focus is determining the molecular mechanisms that underlie basic biological functions using an integrated approach that encompasses biochemistry, chemistry, biophysics, genomics, molecular biology, proteomics, and structural biology. Special emphasis is placed on revealing how biological processes go awry in diseases including cancer, diabetes, heart disease, and AIDS.

While graduate training in a BMBB laboratory involves first-year coursework and associated preliminary examinations, the focal point for graduate education is thesis research. Laboratory-based exploration coupled with journal clubs, seminars, scientific meetings and retreats, career counseling and scientific ethics are the major components of the program.

Degree Requirements and Procedures

The following requirements and procedures are specified for typical students. Certain exceptions may be made with the consent of the advisor and Director of Graduate Studies. When an exception is approved notify the Student Personnel Coordinator as they approve your Graduate Degree Plan.

Course Requirements for PhD Degree

Students major in Biochemistry, Molecular Biology and Biophysics with an ‘emphasis’ in any of the four BMBB Supporting Program Tracks:

1. Synthetic Biology and Biotechnology
2. Molecular Biology
3. Metabolic and Systems Biology
4. Chemical and Structural Biology

To obtain a Ph.D. in Biochemistry, Molecular Biology and Biophysics, all students must complete 9 credits of required coursework for the major in BMBB.
Requirements for the major in BMBB (9 credits):

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
<th>Credits</th>
<th>Grade</th>
<th>Semester</th>
<th>Days/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>BioC 8001</td>
<td>Biochemistry: Structure, Catalysis &amp; Metabolism</td>
<td>3</td>
<td>A/F</td>
<td>Fall</td>
<td>10:10 - 11:00 MWF</td>
</tr>
<tr>
<td>BioC 8002</td>
<td>Molecular Biology &amp; Regulation of Biological Processes</td>
<td>3</td>
<td>A/F</td>
<td>Fall</td>
<td>8:15 - 9:30am MW</td>
</tr>
<tr>
<td>MCDG 8920</td>
<td>Special Topics (Itasca Lab Workshop)</td>
<td>2</td>
<td>S/N</td>
<td>Fall</td>
<td>Last 2 weeks in August</td>
</tr>
</tbody>
</table>

In addition, all students must complete 15 credits of coursework in one of the four BMBB Supporting Tracks. Courses need to be at graduate level with a course number of 5XXX or higher to count towards a Ph.D. degree.

<table>
<thead>
<tr>
<th>Track</th>
<th>Course Number</th>
<th>Course Name</th>
<th>Credits</th>
<th>Grade</th>
<th>Semester</th>
<th>Days/Time</th>
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</thead>
<tbody>
<tr>
<td>BioT Required</td>
<td>BioC 5352</td>
<td>Biotechnology and Bioengineering for Biochemists</td>
<td>3</td>
<td>A/F</td>
<td>Spring</td>
<td>1:15 - 2:45pm MW</td>
</tr>
<tr>
<td>BioT Required Mol suggested</td>
<td>BioC 5361</td>
<td>Microbial Genomics and Bioinformatics</td>
<td>3</td>
<td>A/F</td>
<td>Fall</td>
<td>10:15 – 11:30 am TTh</td>
</tr>
<tr>
<td>BioT Suggested Mol Suggested</td>
<td>MICA 8002</td>
<td>Structure, Function, and Genetics of Bacteria and Viruses</td>
<td>4</td>
<td>A/F</td>
<td>Fall</td>
<td>2:30 – 4:25 pm TTh</td>
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<td>BioT, SysB Suggested Mol Required</td>
<td>GCD 8151</td>
<td>Cell Structure and Function</td>
<td>3</td>
<td>A/F</td>
<td>Fall</td>
<td>9:45 – 11:00 am TTh</td>
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<tr>
<td>BioT Suggested</td>
<td>BioC 5309</td>
<td>Biocatalysis and Biodegradation</td>
<td>3</td>
<td>A/F</td>
<td>Spring</td>
<td>8:45 – 10:00 am TTh</td>
</tr>
<tr>
<td>BioT Suggested</td>
<td>BioC 5351</td>
<td>Protein Engineering</td>
<td>3</td>
<td>A/F</td>
<td>Fall</td>
<td>11:15 – 12:30 pm MW</td>
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<tr>
<td>BioT Suggested</td>
<td>CSCI 5461</td>
<td>Functional Genomics, Systems Biology, and Bioinformatics</td>
<td>3</td>
<td>A/F</td>
<td>Spring</td>
<td>11:15 – 12:30 pm TTh</td>
</tr>
<tr>
<td>Mol Suggested</td>
<td>MICA 8003</td>
<td>Immunity and Immunopathology</td>
<td>4</td>
<td>A/F</td>
<td>Fall</td>
<td>10:10 - 11:00am MTWTh</td>
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<td>Mol Suggested</td>
<td>MICA 8004</td>
<td>Cellular and Cancer Biology</td>
<td>4</td>
<td>A/F</td>
<td>Spring</td>
<td>9:05 - 9:55am MWThF</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
<td>Type</td>
<td>Semester(s)</td>
<td>Time</td>
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<td>GCD 8131</td>
<td>Advanced Genetics and Genomics</td>
<td>3</td>
<td>A/F</td>
<td>Spring</td>
<td>2:30 - 3:20pm MWF</td>
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<td>GCD 8008</td>
<td>Mammalian Gene Transfer and Expression</td>
<td>2</td>
<td>A/F</td>
<td>Spring</td>
<td>9:05 - 11:00am T</td>
<td></td>
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<tr>
<td>PubH 6450</td>
<td>Biostatistics I</td>
<td>4</td>
<td>A/F</td>
<td>Fall</td>
<td>1:25 - 3:20pm T-Th + lab section</td>
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<tr>
<td>SCB 8181</td>
<td>Stem Cell Biology</td>
<td>3</td>
<td>A/F</td>
<td>Fall</td>
<td>11:15 – 12:05 pm MWF</td>
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<tr>
<td>STAT 5021</td>
<td>Statistical Analysis</td>
<td>4</td>
<td>A/F</td>
<td>Fall &amp; Spring</td>
<td>10:10 - 11am MWF + Lab section</td>
<td></td>
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<tr>
<td>MICA 8010</td>
<td>Microbial Pathogenesis</td>
<td>3</td>
<td>A/F</td>
<td>Fall (even years)</td>
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<td>BioC 5216</td>
<td>Current Topics in Signal Transduction</td>
<td>3</td>
<td>A/F</td>
<td>Spring</td>
<td>1:00 – 2:15 PM MW</td>
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<tr>
<td>BioC 5527</td>
<td>Introduction to Modern Structural Biology</td>
<td>4</td>
<td>A/F</td>
<td>Fall</td>
<td>12:20 - 2:15pm MW</td>
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<tr>
<td>BioC 5528</td>
<td>Spectroscopy &amp; Kinetics</td>
<td>4</td>
<td>A/F</td>
<td>Spring</td>
<td>10:10 - 12:05pm TTh</td>
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<tr>
<td>Chen 8754</td>
<td>Systems Analysis of Biological Processes</td>
<td>3</td>
<td>A/F</td>
<td>Spring</td>
<td>2:30 - 3:45pm TTh</td>
<td></td>
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<tr>
<td>BioC 5213</td>
<td>Selected Topics in Molecular Biology</td>
<td>3</td>
<td>A/F</td>
<td>Fall</td>
<td>8:15 - 9:30am TTh</td>
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<td>BioC 5444</td>
<td>Muscle</td>
<td>3</td>
<td>A/F</td>
<td>Spring</td>
<td>4:00 - 5:15pm TTh</td>
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<tr>
<td>BioC 5331</td>
<td>Macromolecular Crystallography I</td>
<td>1</td>
<td>S/N</td>
<td>Fall</td>
<td>4:40-6pm T</td>
<td></td>
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<tr>
<td>BioC 5532</td>
<td>Macromolecular Crystallography II</td>
<td>1</td>
<td>S/N</td>
<td>Spring</td>
<td>4:40 - 5:30pm T</td>
<td></td>
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<tr>
<td>Chem 8011</td>
<td>Mechanisms of Chemical Reactions</td>
<td>4</td>
<td>A/F</td>
<td>Fall</td>
<td>10:10 - 11:00am MWF</td>
<td></td>
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<tr>
<td>Chem 8021</td>
<td>Computational Chemistry</td>
<td>4</td>
<td>A/F</td>
<td>Spring</td>
<td>9:05 - 9:55am MWF</td>
<td></td>
</tr>
<tr>
<td>BioT, CSB Suggested</td>
<td>Chem 8411</td>
<td>Introduction to Chemical Biology</td>
<td>4</td>
<td>A/F</td>
<td>Fall</td>
<td>1:00 - 2:15pm TTh</td>
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<td>Chem 8412</td>
<td>Chemical Biology of Enzymes</td>
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<td>A/F</td>
<td>Spring – Periodic</td>
<td>11:15 - 12:45pm MW</td>
</tr>
<tr>
<td>BioT, CSB Suggested</td>
<td>Chem 8735</td>
<td>Bioinorganic Chemistry</td>
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<td>A/F</td>
<td>Fall – Periodic</td>
<td>2:30 - 4:25pm TTh</td>
</tr>
<tr>
<td>Phcl 5111</td>
<td>Pharmacogenomics</td>
<td>3</td>
<td>A/F</td>
<td>Spring</td>
<td>Noon- 1pm M &amp; 3:30-5:30pm W</td>
<td></td>
</tr>
<tr>
<td>PubH 7445</td>
<td>Statistics for Human Genetics and Molecular Biology</td>
<td>3</td>
<td>A/F</td>
<td>Spring</td>
<td>1:25 - 2:15pm MWF</td>
<td></td>
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<tr>
<td>Mica 8013</td>
<td>Translational Cancer Research</td>
<td>2</td>
<td>A/F</td>
<td>Spring</td>
<td>8:00 - 8:50am T</td>
<td></td>
</tr>
<tr>
<td>GRAD 8101</td>
<td>Teaching in Higher Education</td>
<td>3</td>
<td>A/F</td>
<td>Fall/Spring, Summer</td>
<td>Check One Stop</td>
<td></td>
</tr>
</tbody>
</table>

Only grades C and better can be applied to a degree. All students must maintain a minimum cumulative GPA of 3.0 during their residence in the BMBB program (see also section H. Termination of Graduate Status). Students awarded a 3M Fellowship must have a minimum cumulative GPA of 3.5 at the end of their second year; otherwise the fellowship will not be renewed.

Courses from disciplines other than Biochemistry, Molecular Biology and Biophysics may also be used to build a supporting (see required and recommended courses of supporting program tracks). The selection of courses should be carried out in consultation with the Director of Graduate Studies and your advisor.

A student may elect to complete a minor (a rarely used option) instead of a supporting track. In this case, all 12 credits must be from a single graduate program, and the courses selected must be approved by the Director of Graduate Studies of that graduate program. In addition to the required course work for the major in BMBB and elected Supporting Track, students are required to attend 2 biochemistry seminars per week, the Departmental invited speaker seminar (BioC 8184) and the student seminar (BioC 8084). After the first year, students must register for 1 credit of BioC 8084 until they have reached Advanced Doctoral Status. BioC 8184 has to be attended at least 50% of the time. Students have to sign in, and if attendance is below 50% they will not be considered for BMBB travel and dissertation awards.

Students have to file a Graduate Degree Plan form see (http://policy.umn.edu/forms/otr/otr198.pdf) for approval by the program and college. This form is the official record of who a student’s faculty advisor is, what coursework will be used to meet degree requirements, and whether a student formally declares a minor.

To be considered a full-time student, a minimum of 6 credits and a maximum of 14 credits must be taken per semester prior to completing the Preliminary Examination. In order to complete the program in 5 years students should be registering for 14 credits (the beginning four semesters).
Examinations
There are two examinations for the PhD degree: a preliminary and a final examination. The preliminary exam consists of a written exam at the beginning of the 4th semester (Spring Year 2) and an oral exam at the end of the 4th semester (Spring or early Summer). The final examination is an oral exam with thesis defense, typically end of 5th year. The thesis committee conducts these examinations, but the committees differ for the two exams.

Preliminary Written and Oral Examination Committee
The committee consists of at least five members, including the advisor and any co-advisors. Students nominate graduate faculty to serve on their committee by completing the form from the Student Personnel Coordinator due mid-June of the first year. Students contact potential committee members outside the department, but do not need to contact faculty members within BMBB. Nominations are approved by the Directors of Graduate Studies. Once approved, students enter their committee assignment online.

The advisor is a committee member, attends the oral exam, but does not ask questions, help the student, or vote. The co-advisors, if any, will ask questions and vote. The committee must contain: at least three members from the major field (not including advisor) and at least one member from an outside (minor) field. The minor field member has a primary appointment in a department other than the Department of Biochemistry, Molecular Biology and Biophysics. A co-advisor may serve as committee chair, major or minor field examiner.

Final Graduate Examination Committee
Following the Preliminary Examination, the student may change the assigned committee to determine the Final Graduate Examination Committee. This committee must include the advisor as a voting member, so the minimum committee size is four: three from the major field including the advisor and one from the minor field. This committee reviews the student’s progress annually and provides advice about the thesis project. As above, a co-advisor may serve as committee chair, major or minor field examiner. To change the committee, the student sends an email to the DGS for approval and contacts the faculty member for consent if the faculty member is outside the BMBB department. After approval, the student updates the committee online at the link above.

Mini-review of thesis research
Review of thesis research: Before the preliminary written exam, students write a double spaced 5-6-page review relevant to their planned thesis research. The topic is chosen by the student and their advisor. The advisor should work with the student in developing an outline and editing. The review should cover 5-10 key papers published in the last 10 years and include a figure that summarizes the review. Both scientific content and writing (logical layout, sentence structure, and spelling) are important. Once the review is complete, a second reviewer from the student’s examination committee provides feedback on review. Students choose a reviewer from your preliminary examination committee, inform them at beginning of the writing and allow two weeks for review. Students should complete their written review by the end of summer of year 1.

Preliminary Written Exam
Preliminary written exam: Students may write their proposal on any field of research, but the proposal must be on unanswered important questions. The proposal may pertain to the thesis research of the student, but must not overlap with existing proposals prepared by the research advisor. Students must propose a research beyond any existing proposals. Proposals written for another purpose, such as a fellowship or class, are not acceptable.

The research proposal must be conceived and written by the student. The specific aims and research design can be discussed with the student’s advisor to avoid overlaps with existing proposals prepared by the advisor. The student will submit a title and 0.5 page summary for approval to the preliminary exam committee two months before the deadline. However, the research advisor should have limited input on the intellectual content. (Frequently asked questions with answers are included below.) Organization of the proposal should be modeled after the following template. (A template is provided below.) Preliminary data are not expected. The scientific level of the proposal should be that of a beginning graduate student writing an exam, not that of a faculty member submitting a research proposal to a national funding agency.
Submission & Decision: A pdf copy of the Written Preliminary Examination must be submitted to the Student Personnel Coordinator on the first workday in February of the second academic year. Three of the major field examiners of the Graduate Committee evaluate the proposal within a month of submission (typically the first workday in March of the second academic year). The proposal is also sent to minor program examiners who may voluntarily contribute comments. The Committee members will decide on one of the following outcomes:

**Acceptable:** Student passes. On the 1st submission, all 3 major field members of the committee must vote acceptable for the student to pass. If members of the major field vote acceptable while minor or supporting program members provide a written evaluation and vote needs revision or unacceptable, it is the responsibility of the Committee Chair to evaluate the comments in sum and reach a decision. It is allowable for a student to pass the examination if the major field votes unanimously acceptable while the minor or supporting program examiners vote unacceptable. However, the Committee Chair may, upon the advice of the minor or supporting program faculty, require a revised proposal be submitted even if the major field examiners voted unanimously pass.

**Acceptable, in principle, but needs revision:** the general problem and approach are reasonable, but some significant flaws exist in the presentation that needs to be corrected before the proposal is acceptable. Revised proposals have to be submitted to the Student Personnel Coordinator by the first weekday in April or a month after receiving the notification, whichever occurs first. For proposals that only required minor revisions, the student will have two weeks to revise and submit. Revised proposals will be evaluated by the Committee within two weeks of submission. If the revised proposal is still not acceptable to the 3 major field examiners, the student will be allowed 1 additional re-write that must be returned within 1 month of the second notification. Revised proposals must include a point-by-point response to the committee’s concerns (limited to 1 page) describing changes in the revised proposal.

**Unacceptable:** proposal contains fundamental flaws that cannot be remedied by simply rewriting it. The student does not pass the examination, but may be given the chance to (re)write a new proposal if the committee deems this appropriate. However, only 1 additional written proposition may be submitted. Rewritten new proposals have to be submitted to the Student Personnel Coordinator by the first weekday in May or two months after receiving the notification, whichever comes first. Rewritten proposals will be evaluated by the Committee within two weeks of submission. If the second proposal is unacceptable or needs revision, the student will have failed the examination. In the case of a split vote among the Committee members, the Directors of Graduate Studies will be responsible for deciding the acceptability of the proposal in consultation with the Committee Chair.

After the Student Personnel Coordinator notifies the student that he/she has passed the Written Preliminary Examination, the student will schedule the Oral Preliminary Examination. The Personnel Coordinator updates the student’s Online Record of Exam with the Graduate School.

**Preliminary Oral Exam**

**Scheduling**
Once the committee chair and readers/majors have reviewed the student’s written proposal and judged it acceptable, the student may schedule their preliminary oral exam. The oral exam must take place within 6 weeks of passing the written preliminary exam. The oral exam should be completed by the beginning of the third year because the student is not eligible for reduced tuition until this exam is complete.

The student must contact the committee members to schedule a 2-3 hour time for the oral exam. The student should send and electronic copy of the written preliminary exam to all the committee members. The written exam was evaluated by only some of the committee members, but all the committee members should have it to prepare for the oral exam. The student reserves a conference room for the meeting by contacting the MCB Front Desk (612-625-3511) or the Gortner Labs office (612-624-7755).

At least one week before the scheduled exam, the students must inform the Graduate Student Services and Progress (GSSP). Once this form is complete, the Graduate School will email the student instructing them to pick-up their Preliminary Oral Exam Form. The student brings this form to the oral exam, all committee members will sign it, and the student will return it to the Graduate School (not the Department). Any changes in the examining committee must be
approved by Graduate Student Services and Progress prior to the examination at the website above. The student can also contact Graduate Student Services and Progress at gssp@umn.edu or 612-625-3490. The student should also inform the Student Personnel Coordinator of the time and place of the exam, so the Department can monitor the student’s progress.

**Oral Preliminary Examination**

The oral exam focuses on a defense of the written examination, but includes questions on general knowledge of biochemistry. The exam begins with a presentation and defense of the written proposal submitted by the student. However, the examination may range into other areas relevant to the student’s program. Committee members representing the minor or supporting program will evaluate the student for her/his breadth of knowledge. The student is expected to demonstrate knowledge from courses taken in graduate school.

As noted above, the student’s advisor will attend the oral exam as a non-voting member and may not participate in examination or discussion of the outcome unless questioned by other committee members. The advisor’s role, therefore, is to observe so that she/he may help in correcting any problems or deficiencies that are encountered during the student’s examination. All other committee members will evaluate the outcome of the preliminary oral exam in one of three ways: pass, pass with reservations, or fail. The voting proportions necessary to pass the exam are, depending on the size of the committee:

- If four voting members, a unanimous vote or a vote of 3–1 is required.
- If five voting members, a unanimous vote or a vote of 4–1 is required.
- If six voting members, a unanimous vote or a vote of 5–1 or 4–2 is required.
- If seven voting members, a unanimous vote or a vote of 6–1 or 5–2 is required.

Students who do not earn committee votes in these proportions fail the examination. If, to achieve the minimum number of votes to reach a verdict of pass, any vote of pass with reservations is included, then the outcome will be recorded as a pass with reservations. A vote to pass the student with reservations still constitutes a passing vote.

At the end of the exam, all committee members sign the Preliminary Oral Examination Report Form, and the student must submit it to the Graduate School within 24 hours. Rules for “next steps” depending upon the outcome of the exam (i.e. passed, passed with reservations, or failed) will be provided by the Graduate School and are outlined on the Preliminary Oral Examination Report Form.

**Frequently asked questions**

1. *Can the student discuss prelim topic with the advisor or prelim exam committee members? Can the advisor or committee members comment on whether the topic is good or not?* Yes, but only for the purpose of avoiding overlap with existing proposals.

2. *Can the advisor suggest a prelim topic?* No.

3. *Can the student discuss prelim topic, specific aims, good proposal writing, experimental approaches with friends, colleagues in lab, and others?* Yes.

4. *Can the student discuss specific aims, good proposal writing, experimental approaches with their preliminary examination committee members?* No.

5. *Can the advisor give a comment on whether the specific aims are good or not or suggest experimental approaches?* No.

6. *Can the advisor give comments on what is a good proposal writing?* Perhaps, but not specifically about the student’s proposal. The advisor should not read or edit the student’s proposal.
7. Can the advisor give the student examples of good proposals? Yes.

8. Can the advisor suggest literature and good readings for prelim writing? Yes.

9. If the committee requests revisions to the proposal, can the student talk to the committee about them? Yes. The student is encouraged to talk to the committee to understand what revisions are requested, but the revisions themselves are up to the student and should not be discussed with the committee.

Template for written preliminary exam

Page limit: 15 double-spaced pages with 12 point font, excluding references and, for a revised proposal, the one-page response to committee’s comments.

II. Hypothesis and Specific Aims approximately two pages
State the goal of the proposed research and summarize the expected outcomes. State a hypothesis and list specific objectives to test it.

III. Background and significance approximately three pages
Explain the importance of the problem that the proposed project addresses. Explain how the proposed project will improve scientific knowledge and/or technical capability in one or more broad fields.

IV. Research design including expected results and alternative approaches approximately 10 pages.
Describe the overall strategy, methodology, and analyses to achieve the specific aims. Include how the data will be collected, analyzed, and interpreted. Discuss potential problems and alternative approaches.

Graduation Packet: Graduation Packets are no longer requested but printed by the student
• Log in and print packet - http://www.grad.umn.edu/students/doctoral/index.html
• Packet will include the Thesis Reviewers’ Report form, Application for Degree form plus other information.

Application for Degree: Needs to be submitted to 160 Williamson Hall by the first working day of the intended month of graduation. http://onestop.umn.edu/degree_planning/graduation/degree_application.html

Thesis Reviewer’s Report: Committee members read the thesis draft and must sign this form indicating that it is acceptable for defense at least 1 week prior to the scheduled date of the Final Oral Examination. Students must make sure that sufficient time is allowed for the readers to examine the thesis. Graduate school rules specify that all members of the Committee must have at least 2 weeks to read the thesis. This means that the thesis should be given to Committee members 3 weeks before the examination date.

Scheduling Final Oral Exam: The Final Oral Exam needs to be scheduled at least 1 week before the exam by scheduling the exam online. Only if the student has met the requirements listed on the scheduling form will the Graduate School send the important Final Oral Examination Report Form to the chair of the examining committee.

Final Oral Exam: This examination is primarily the thesis defense, although the questions and discussion may cover related areas as well. The 1st portion of all Final Oral Examinations is a seminar given by the student covering the thesis research. This seminar must be publicly announced and all interested faculty and students are invited. Following a brief period of questions from the audience, the 2nd portion of the examination will consist of additional questions to the candidate from the members of the Examination Committee. The 2nd section of the examination is not open to the public. Questions often arise about the role of the reviewers and the interpretation of the reviewers’ actions prior to the oral examination. The reviewers determine whether the thesis is acceptable for defense. If the thesis is judged to be unacceptable, specific reasons will be communicated to the student. If acceptable, the reader has judged that the thesis is ready for oral defense, and only that. The reviewer may have reservations after the oral examination and vote to not pass the candidate for the PhD degree. These reasons should be communicated to the student. Rules for the outcome
(Passed or Failed) of the Final Oral Examination are provided by the Graduate School and are listed on the Final Oral Examination Report. The Final Oral Examination Report signed by the members of the Examination Committee needs to be submitted to the Graduate School within 24 hrs after completion of Final Oral Exam.

Graduation: Submit the following on or before the last working day of the month you intend to graduate: Your dissertation, publishing fee, final oral exam report form, one signature page signed by your adviser, one copy of the title page of your dissertation, deposit agreement to allow use of your dissertation in the University MN Conservancy, and survey of earned doctorates.

http://www.grad.umn.edu/students/degree_completion/doctoral/ElectronicDissertationSubmission/index.html

Teaching Requirements for PhD Degree

In order to help prepare students for an academic or educational career, teaching and its associated activities is required of all BMBB graduate students. (Please see further details in Appendix C: Guidelines for teaching assistants). PhD students are required to do 2 semester equivalents of teaching. To enhance the breadth of experience, attempts are made to divide this between one laboratory-based course and one-lecture based course. However, this may not always be possible depending on the availability of Teaching Assistant positions. It is highly recommended that all students attend the Teaching Assistant Workshop offered each fall by the Center for Teaching and Learning. More information on teaching requirements can be found in appendix C.

- Teaching requirements are usually fulfilled during students’ 2nd through 4th years in residence
- The teaching assignments are generally made and announced during the summer of the academic year preceding the one in which the assignment is to be carried out.
- Students are required to inform a DGS of any obligations or commitments that may conflict with teaching in any given semester. Once assignments have been made, students must inform the DGS immediately of any obligations or commitments that may conflict with their assigned teaching activities. The DGS will determine if these conflicts are of sufficient gravity that a change in the teaching assignment is needed. Student should work no more than an average of 10 hours per week.
- **SETTA Test for International Students.** Current University of Minnesota policy requires that all non-native English-speaking teaching assistants or prospective teaching assistants, who are or will be assigned to teaching, tutoring or advising duties, take the SETTA Test. (for further details, please see Appendix C). It is important to take this test long before the start of the student’s teaching assignment in the event that remedial effort will be required to improve proficiency in spoken English. Classes are available to help improve ability in spoken English. Improving spoken English will be of great benefit to the student for such experiences as discussing research projects with the advisor and lab coworkers, discussing new developments in biochemistry seminars and journal clubs, presenting seminars, and routine communication. It is the student’s responsibility to have the necessary English language skills.

Research Seminar Presentation required for PhD Degree

In order to assist students and provide feedback on research achievement, a periodic progress review must be conducted.

- Students must present a research seminar during their 2nd, 3rd, 4th, and 5th years in the program. Seminars should be attended by Graduate Committee members. A minimum of 3 members of the Graduate Committee must be present for the progress review. The advisor should also be present and participate fully in the discussions involved in the research review process. It is the student’s responsibility to ensure that the minimum number of committee members is in attendance. If this minimum attendance is not achieved at the regularly scheduled seminar, the students must schedule an additional committee meeting to fulfill this requirement.

- Research seminars will be presented as a part of a regularly scheduled program in the Department (BioC 8084 or another seminar series at the University). Fifth-year students have the option of presenting their research in Journal Clubs, but must obtain written approval from one of the DGSs. Fifth year students must notify the Student Personnel Coordinator about the location of their seminar. The research seminar should be advertised
and open to all members of the program. The seminar should be preceded by an abstract that is circulated to the graduate program members. The online evaluation form should be completed prior to the student presenting their research. Following the seminar, the Committee will meet with the student and go over the online evaluation form. The advisor may submit his/her own evaluation if different from the Chair’s.

**Evaluation of Student Progress**

Normal progress toward the PhD degree by full time graduate students is based on satisfying the following general minimum requirements:

1. Selection of the thesis advisor by the May Term of the 1st year.
2. Completion of all laboratory rotation reports by the end of May Term of the 1st year.
3. Maintaining a GPA of 3.0 or better
4. Passing the Written Preliminary Examination.
5. Passing the Oral Preliminary Examination.
6. Performing all teaching assignments and other departmental functions satisfactorily, including presenting seminars.
7. Making satisfactory progress in research. In order to assist students and provide feedback on research achievement, a periodic progress review must be conducted:
   - Students must present a research seminar during their 2nd, 3rd, 4th, and 5th years in the program. Second year students should present their thesis topic during their student seminar in BioC 8084.
   - The research seminar should be advertised and open to all members of the program. You must send the title of your seminar and a brief abstract to the Student Personnel Coordinator at least 1 week prior to your seminar. An annual review form will be completed by the student and advisor prior to the student’s seminar.
   - The students Committee members should attend the seminar. A minimum of 3 members of the Graduate Committee must be present for the progress review. The advisor should also be present and participate fully in the discussions involved in the research review process. It is the student’s responsibility to ensure that this requirement is fulfilled and must schedule a committee meeting as soon as possible after the seminar.
   - Following the seminar, the Committee will meet with the student to discuss the student’s thesis project and annual review.

**Thesis Credits and Advanced Doctoral Credits**

- **Thesis Credits**: To obtain a PhD degree, students must register for a minimum of 24 thesis credits (BioC 8888, Doctoral Thesis Credits). BMBB program permits students to register for these credits (BioC 8888) beginning their first semester. The rational is to decrease the time it takes to accumulate at least 24 thesis credits. For Graduate School registration requirements see: [http://www.grad.umn.edu/students/registration/index.html](http://www.grad.umn.edu/students/registration/index.html).

- **Advanced Doctoral Credits**: Upon completion of the 24 thesis-credit requirement, the student is required to register at least once during each academic year for 1 credit of BioC 8444 (FTE: Doctoral) to maintain full time, active student status. For student loan deferment purposes, the student will need to register every semester (see [http://www.grad.umn.edu/students/registration/index.html](http://www.grad.umn.edu/students/registration/index.html)).
Responsibility for Payment of Tuition Costs

- The program will pay for program-approved classes leading to the degree before the Preliminary Oral Exam (up to 14 credits per semester, inclusive). Students have ample time to take classes during this time.

- Following the Preliminary Oral Exam, a student may take a degree-related class. The advisor (rather than the Program) will pay for the tuition, and, as such, will issue the permission to register for the course.

- Tuition for all non-degree related classes will be paid by the student, and the advisor must give permission to take the class, if it meets during normal working hours.

- The Preparing Future Faculty Program provides a teaching and learning forum in which participants engage with a multidisciplinary, cross-cultural mix of doctoral candidates and post-doctoral fellows. Participants discuss learning theory and strategies, develop teaching skills, create classroom and job search materials, and work with faculty from a range of institutional types. To receive a letter of recognition and certificate of program participation from the Graduate School, participants must complete GRAD 8101 and GRAD 8200 "Practicum for Future Faculty. The “Preparing Future Faculty” course sequence is non-degree-related classes. The student or advisor may elect to cover the tuition for this course at the request of the student. Regardless of who pays the tuition for this series, written permission must be obtained from the advisor.

Termination of Graduate Status and/or Support

Graduation or withdrawal from the program: Upon graduation, students should notify the Student Personnel Coordinator and Director of Graduate Studies of the effective date for termination of student status. A bound copy of the thesis must be given to the Student Personnel Coordinator. Students who decide to withdraw from the program should give written notice to the Director of Graduate Studies as soon as the decision has been reached. The notice should indicate the effective date of withdrawal. In instances where students have effectively withdrawn from the program without notice, the Department will terminate support retroactive to the apparent date the student ceased to participate in the program.

Graduation Deadlines: The BMBB program strongly encourages completion of the research for the Ph.D. degree within five years of the start of the semester in which the student enters the program. This will usually be the Fall semester for students following the normal progression and will not count any summer study prior to that Fall semester.

Students who have not completed their degrees after this five year period may continue to pursue research towards a degree up to the graduate school limit of 8 years after entering the graduate program, so long as the advisor provides space and funding for supplies. The BMBB program will not guarantee stipend support after the summer semester of the 5th year in the program. Extension of research in the BMBB program may be granted according to the procedure described below. Official, unpaid leaves of absence will not be included when the student’s time in the program is calculated.

If all of the laboratory research for the Ph.D. is completed within the 5 year limit, a Director of Graduate Studies may grant a single 3 month writing extension for thesis preparation. This extension does not require a meeting of the student’s thesis committee.

Extensions of 1 – 4 months for additional laboratory research totaling a maximum of one year may be granted to a student who has made satisfactory progress toward his/her Ph.D. degree as determined by the student’s Graduate Committee. An extension shall not be granted if, in the judgment of the student’s committee, the student is not likely to complete a body of work sufficient for a Ph.D. thesis by the end of his/her sixth year.

To obtain an extension for additional research, the student must meet in person with his/her Graduate Committee, present the progress that has been made to date in the research problem, outline a plan of the work to be finished, and indicate the anticipated time needed for its completion. The Graduate Committee should make recommendations for
modifying this plan, if appropriate, and reach an agreement with the student and the thesis advisor on the work to be completed. Based on this meeting, the Chair of the Graduate Committee will forward a letter to the DGS (with a copy to the student and advisor) outlining the Committee's recommendation.

The student must schedule the meeting with his/her committee at least 2 weeks before the expiration of the first extension. A second extension may be granted to students who received a first extension based on the same rules and criteria. If the second extension is not approved, the student will remain the BMBB program until the end of the current semester, but no extension will be permitted. If the second extension is granted, no additional extensions for research shall be granted, but a 3 months writing extension may be granted by the DGS.

Termination of graduate status: BMBB policy requires that 1 warning be issued to the student regarding unsatisfactory performance before that student is terminated. The warning must include the specific deficiencies and must outline a mechanism and time limit for correcting them. **Students must maintain a cumulative graduate GPA of 3.0 or higher during their entire residence in the BMBB program. Students with a GPA below 3.0 after the 1st academic year will have one semester to improve their GPA to 3.0. Students with a GPA below 3.0 after three semesters in residence will be terminated from the BMBB program. A satisfactory performance on the Written and Oral Preliminary Examinations is also required for continuation in the program.**

Academic and scientific misconduct: Academic misconduct (such as cheating on closed book examinations) or violation of course guidelines (which describe the extent of collaboration that is acceptable in responding to take home examinations, homework assignments, or problem sets) is sufficient cause for dismissal from the program. **Unethical scientific conduct, including plagiarism, fabrication of data, and the falsification of data, is grounds for dismissal.**
Introduction: The MD/PhD Program combines approximately 7 years of coursework and fundamental biomedical research culminating in a dissertation and PhD degree and clinical training resulting in a MD degree. The goal of the MD/PhD Program is to be a link between biomedical science and clinical practice to provide a basis for optimal research and patient care. MD/PhD students who have a strong, fundamental interest in the analysis of disease at the molecular level and who anticipate a career as a clinical or basic biomedical research are encouraged to pursue their PhD training with faculty in the Graduate Program in Biochemistry, Molecular Biology and Biophysics (BMBB). When students enter the BMBB program they are considered 2nd year students. The training is completed in the following sequence:

Phase 1: Pre-clinical coursework (years 1-2). Students take extensive pre-clinical coursework, select an area of basic biomedical research, and choose an advisor to supervise their PhD dissertation. Three laboratory rotations are completed in Phase 1. MD/PhD students who choose to enter the BMBB Graduate Program are invited to participate in the BMBB Program Retreat in Itasca (in August of year 2). MD/PhD students who enter a BMBB laboratory for their dissertation research must do so no later than the fall semester of their 3rd year.

Phase 2: The student becomes a member of the BMBB program (years 3-6). Fulfillment of the PhD component of the MD/PhD Program with a degree in BMBB requires completion of specialty coursework, dissertation research culminating in the writing of a thesis, and satisfactory completion of both the Preliminary and Final Exams. In the 1st year of Phase 2, (year 3 of the MD/PhD program) students will take coursework in the BMBB program. A minimum of 4 credits, 1 or 2 classes is required. Some research areas will require additional classes, scheduling these classes should be discussed with the student’s BMBB advisor and the DGS. In the Spring of year 1 of Phase 2 students will complete the requirements for the Preliminary Exam including both written and oral components as described in Section II.B. Following satisfactory completion of the Preliminary Exam, students will continue with full-time research, typically 3-4 years. During this time MD/PhD students will serve as a teaching assistant (TA) in a BMBB course for 1 semester during Phase 2. The TA assignment is determined by the DGS of BMBB and may be either a laboratory- or lecture-based experience. At the end of Phase 2, students will complete their Final Oral Exam with Thesis Defense as required by the Graduate School and be granted their PhD

For the PhD degree, the University of Minnesota Graduate School requires 24 credits. This requirement is met by Medical school credits. Students in the MD/PhD Program, who conduct research under the direction of a BMBB faculty member, will major in Biochemistry, Molecular Biology and Biophysics. To major in BMBB, the Graduate Program requires that MD/PhD students complete a minimum of 4 credits of coursework in a single area of emphasis (Regulatory Biochemistry, Molecular Biology, Microbial Biochemistry and Biotechnology, or Structural Biochemistry and Biophysics). MD/PhD students should plan their specialty coursework in consultation with their advisor and the Director of Graduate Studies upon entering the program.

During Phase 2, students will become completely immersed in the BMBB Graduate Program, functioning in every respect identically to those BMBB students admitted in the PhD Program. This includes attending BMBB retreats, journal clubs, laboratory meetings, research reviews, seminars, national and international meetings, and authoring original scientific papers. MD/PhD students are also eligible to hold elected office within the BMBB student governance system and represent the BMBB Program on University or College committees. Like all graduate students MD/PhD students are encouraged to apply for private research fellowships (e.g., American Heart Association) and Graduate School Doctoral Dissertation Fellowships. During Phase 2 MD/PhD students are financially supported through a combination of fellowships, training grants and individual research grants. MD/PhD students are paid the stipend and have benefits identical to those BMBB students in the PhD Program. During Phase 2 the MD/PhD program requires the student to commit 4H/week over a 36-week period to clinic time with a physician scientist.

Phase 3: Clinical rotations and MD (year 7): Approximately 64 weeks of clinical rotations conclude the Combined Degree Program, at the end of which the MD degree is awarded. In Phase 3, or earlier, students link with a clinical-discipline advisor who is responsible for keeping them in touch with clinical medicine and research. MD/PhD Internet Site: http://www.med.umn.edu/mdphd/
Master of Science Degree (MS)
The Master of Science Degree (MS) is given only under Thesis Masters Plan A. This degree requires that the student satisfactorily completes a course program. For the MS degree, 20 credits must appear on the graduate transcript in the major. MS students must register for 10 thesis credits (BioC 8777).

If related fields (MS) option is selected, the courses may be from different disciplines but should constitute a coherent program of courses that support the overall research interests of the student. A final oral examination will be given covering the student’s research and other topics in biochemistry.

If an MS degree candidate wishes to enter the PhD Program, she/he should plan to complete the MS degree program and pass the Final Examination before applying for admission to the PhD Program. Students who complete the MS and who wish to enter the PhD Program must apply through the Admissions Committee. The final MS Oral Examination is primarily a thesis defense, but may also be used as a basis for recommending that the successful candidate proceed with the PhD Program. Once admitted into the PhD Program, they should complete the oral component of the Preliminary Exam as soon as possible. Students must have a cumulative graduate GPA of 3.0 or higher after 2 semesters or more of residence in order to remain in the Program. Thereafter, the cumulative GPA must be 3.0 or higher at the end of the spring semester of each year prior to graduation.

MS students must complete one semester of teaching. A seminar must be presented each year. Students in the MS program will not receive departmental support. The graduate assistantship will be automatically terminated after three years, unless an extension is granted (see above).

Graduate Appointments
Types of Appointments
Most graduate students will be appointed each semester to 1 of 3 positions, Research Assistant, Summer Research Assistant or PhD Research Assistant. Each of these appointments comes with special conditions/requirements:

- **Research Assistant (RA):** Students will be appointed to this title fall and spring semesters. They must register for a minimum of 6 credits per semester. http://onestop.umn.edu/onestop/registration.html Students register for the maximum number of doctoral thesis Credits (BioC 8888) allowed by the tuition cap in order to reach 24 credits as soon as possible. FICA will not be withheld as long as the student is registered for a minimum of 6 credits.

- **Summer Research Assistant:** (Summer RA): All students will be appointed to this position for summer semester. Students will not register summer semester; thus, FICA and Medicare will be withheld.

- **PhD Research Assistant (PhD RA):** Students are appointed to this position when they have completed their 24 doctoral thesis credits. They must register for 1 credit each semester (including summer if not on fellowship or training grant) until they have completed their PhD.

Students with RA or PhD RA appointments must register before the end of the second week of class. Failure to register by the second week of class will result in the termination of the Graduate Assistantship. Your PI will be responsible for paying your student services fees.

The financial support for graduate students comes from a variety of sources, with a general commitment to provide similar annual stipends for students at similar stages of their PhD career. Frequently, a student’s stipend comes from 2 or more sources in a given year, and the sources may change from year to year. The Research Assistant should see the appropriate payroll administrator, Sarah Dittrich sdittric@umn.edu; for details on pay and the approximate dates and amounts of paychecks. FICA and Medicare taxes are withheld.

The graduate appointment is typically 50 percent. Graduate students are expected to devote their full effort to graduate work (research, study, and teaching). The Director of Graduate Studies and the advisor must be consulted before other employment either inside or outside the University is accepted. Traditionally in the BMBB program, all students have a major responsibility to do research regardless of their source of support. However, a set amount of teaching experience is required for the degree program. Students may be required to accept additional Teaching Assistantships (TA) if their adviser is unable to provide financial support for a period of more than 9 months.
Registration Requirements
Individuals with student loans should inquire of the lending agency about the registration requirements and documentation needed to prevent the loans from coming due. International students need to register for 6 credits in order to maintain their student visa status. Graduate School tuition is paid as part of the graduate appointment, but should a student withdraw from the program in the middle of a semester, he or she will become personally responsible for reimbursement of the tuition for that semester.

Leave of Absence
If a leave of absence is necessary, you need to notify the DGS and the Student Personnel Coordinator. You must file a Leave of Absence Request with the College of Biological Sciences. Students who do not obtain a college-approved leave of absence prior to interrupting enrollment (excluding summer) may be terminated. Active status requires students to enroll for both fall and spring semesters.

Students with a college-approved leave of absence are eligible for reinstatement if they file a Leave of Absence Reinstatement form with the College of Biological Sciences prior to the term in which they intend to enroll. The student must re-enroll the term immediately following the expired leave (excluding summer), and must return to the same major and degree objective.

Vacation/Sick Leave Guidelines
Graduate assistants receive paid leave for University holidays; however they do not qualify for paid vacation leave. Graduate Assistants are entitled to paid sick leave, not to exceed two weeks (10 days) of consecutive pay for absences caused by illness or injury to themselves, a dependent child, or the dependent child of a same sex domestic partner. Students needing a leave of absence other than sick leave (e.g., due to military service, prolonged illness or complications after child birth), must contact the Director of Graduate Studies to discuss options under University guidelines. Please review this website.

Fellowships and Awards
A limited number of competitive pre-doctoral fellowships and awards are awarded in the BMBB Program. A fellowship award is a valuable addition to a student’s résumé. A few important awards and approximate application dates are listed. More information is provided by the Graduate School Fellowship Office and the Minnesota Medical Foundation. Contact the Director of Graduate Studies for further information regarding these fellowships and awards.

Fellowships Awarded Pre-Entry
3M Fellowship
The 3M Fellowship provides recipients with an augmentation in stipend above the $25,000 annual salary that we offered previously in your letter of admission. Recipients also have the opportunity to attend an annual meeting with 3M scientists and engineers. Fellowship recipients will receive the following stipend, provided that you are making satisfactory progress towards your Ph.D. degree and maintain a 3.5 GPA and the fellowship is contingent on joining the BMBB graduate program in the spring of first year.

Deans Distinguished Graduate Fellowship
This fellowship is awarded to the top applicant of the 6 Graduate programs in the Medical School. This Fellowship carries an award of $10,000 on top of the student’s regular stipend amount.

Graduate Excellence Fellowship
The purpose of the CBS Graduate Excellence Fellowship is to recruit academically outstanding students to the graduate programs of the College of Biological Sciences. The Fellowship is a non-service award that carries a stipend of $30,000 for the calendar year beginning at the start of fall semester.

Mary Dempsey Fellowship
This award is presented annually to an outstanding applicant to the graduate program. The award honors Mary Dempsey, Ph.D., emeritus professor of Biochemistry, Molecular Biology and Biophysics, who served the University of Minnesota from 1963 until 2004. This award includes a $1,200 supplement to the awardees’ first year stipend.
The Thomas Reid Fellowship recognizes strong applicants to the BMBB graduate program. The fellowship is based on academic and research credentials, letters of recommendation, and high promise of success in science. The fellowship includes an increase in stipend usually $5,000 above stipend for student years in residence. The fellowship requires successful completion of required coursework with a GPA for 3.5 or better, participation in laboratory rotations and selection of permanent thesis research advisor in BMBB. In years 2 to 5 a GPA of 3.5 or better must be maintained in order to receive the supplement to your stipend.

Fellowships/Awards in Residence
Typically these fellowships/awards are announced at the BMBB Spring Bollum Banquet in May.

Achievement Reward for College Scientists (ARCS) Fellowship
Achievement Rewards for College Scientists Foundation award to advance science and technology in the United States by providing financial awards to academically outstanding US citizens studying to complete degrees in science, engineering and medical research. Scholars receive $5,000 per year for two years.

Armstrong-Pothapragade Fellowship
The Armstrong-Pothapragade Graduate Fellowship is supported through the generous contributions of Dr. Wallace D. Armstrong and Dr. Venkateswarlu Pothapragada. The $1,000 fellowship will be given to a full-time BMBB graduate student who is in good standing and shows potential in their chosen field.

Bacaner Research Award
The Dr. Marvin and Hadassah Bacaner Research Award recognizes exceptional research achievement by graduate students in the basic sciences as well as graduate students or faculty in cardiology.

Beatrice Z. Milne & Theodore Brandenburg Award
The Beatrice Z. Milne and Theodore Brandenburg Award recognizes exceptional thesis research by graduate students in the basic biological sciences. The award reflects the thoughtfulness and generosity of Ms. Beatrice Z. Milne and serves as a lasting expression of her commitment to improving the health of the people of Minnesota.

Charles Carr / William Peterson Award
The Carr-Peterson Award is presented annually to a graduate student whose research emphasizes metabolism and regulation. This $500 award administered, by the Minnesota Medical Foundation, is in recognition of the careers of BMBB emeritus faculty member, Charles Carr and his student William Peterson.

Thomas Reid Award
The Thomas Reid Award is given annually to recognize novelty and innovation in graduate research. Dr. Reid is the founder of Life Science research and development at 3M Company and is an alumnus of the University of Minnesota. He was presented with the Alumni Society Outstanding Achievement Award in 1998. The $1000 Reid award, administered by the University Foundation, is open to any BMBB graduate student submitting a copy of a published or “in-press” manuscript considered particularly significant or groundbreaking. The award may also be applied to an original research contribution that focuses on techniques or methodologies or those that are particularly new or likely to lead to significant changes in how research in a particular field is conducted.

Frederick J. Bollum Award
The Frederick J. Bollum Award is given annually to a graduate student whose thesis research focuses on molecular biology. This $1000 award administered by the Minnesota Medical Foundation, is open to any BMBB graduate student, but is designed to recognize particularly noteworthy findings concerning the biology of nucleic acid structure, function or regulation or any aspect of gene expression.
Arnold Harvey Johnson Doctoral Fellowship
The fellowship was created in 1991 by his family and friends to provide an opportunity to a worthy candidate in the field of biochemistry to pursue studies in the field of nutritional biochemistry. Dr. Johnson received his MS and PhD from the University of Minnesota while working with CH Bailey in the area of fermentation. The graduate student holds the $14,000 fellowship during the entire graduate career.

Ross A. Gortner Award
The Ross A. Gortner Award is given annually to an advanced graduate student in recognition of high quality scholarly contributions. The $1000 award, sponsored by the University of Minnesota Foundation, emphasizes enzymology and/or protein chemistry, and is given to a student in recognition of consistent, high quality research as measured by his/her publication record.

Cyrus Barnum Teaching Awards
Up to four $500 awards may be given out annually to BMBB graduate students in the name of Cyrus Barnum in recognition of excellence in teaching. The awards may be for any aspect of the teaching experience including tutorials, lab classes or traditional classroom activities but may not be awarded to individuals for mentoring undergraduates in research within a faculty member’s laboratory.

Victor Bloomfield Graduate Fellowship in Molecular Biophysics
The Victor Bloomfield Graduate Fellowship in Molecular Biophysics has been established through the generous contribution of BMBB Professor Victor Bloomfield. This endowed fund is used to attract and retain highly talented students conducting research in Structural Biology or Biophysics. The Fellowship may be used as an incentive package to a highly desirable student, and the sponsorship will be annually renewable, provided students maintain good standing in their performance.

Huber Warner Fellowship
The Huber Warner Fellowship in Molecular Biology is supported by the generous contribution of Professor Huber Warner who was a former faculty member in Biochemistry and Associate Dean for Research in the College of Biological Sciences. His $1,000 fellowship will be given to a student in the BMBB Graduate Program who works in the area of molecular biology.

Steer-Pruitt Award
The $500 Steer-Pruitt Award is presented annual for outstanding cardiovascular research by a PhD candidate at the University of Minnesota Medical School. The recipient is selected by an ad hoc faculty committee.

Graduate Student Leadership Awards
Award recognizing current graduate student representatives, each representative holds a two- year position, ensures student views on meetings, recruiting, and other issues. Current 2nd and 3rd year students are eligible for the position and students vote for new representative during the summer.

BMBB travel support
BMBB graduate students are eligible to apply for up to $750 per scientific conference to help defray the costs of attending and presenting their data at scientific conferences.

To apply for a travel grant, please send the following to the DGS:
- Name and location of the conference
- Title, authors and abstract of your presentation (indicate whether it is a poster or talk)
- Previously received a travel grant from the BMBB department?
Other Fellowships

Graduate School Dissertation Fellowship (DDF)
The Doctoral Dissertation Fellowship (DDF) is to give outstanding final year PhD candidates who are making timely progress toward the degree and opportunity to complete the dissertation within the upcoming academic year by devoting full-time effort to the research and writing of the dissertation.

Training Grants
Several training grants are offered to students in particular types of training. Student’s advisor should inform students on how to apply.

Externally Funded Fellowships
Students in the BMBB program are encouraged to try to apply for several externally funded fellowships like NIH Individual Predoctoral Fellowships and American Heart Predoctoral Fellowships. Please see the Student Personnel Coordinator for a list of fellowships students have applied and awarded.

Submission of fellowship proposals to external agencies requires consultation with your adviser and the BioGen grants submission staff to coordinate the preparation and submission of proposals.

Governing Body
The following rules for governance of the graduate program in Biochemistry, Molecular Biology and Biophysics at the University of Minnesota constitute guidelines rather than a formal constitution. The powers and composition of the Coordinating Committee are derived from majority vote of the graduate faculty in BMBB. Actions of the Committee related to the topics below will be binding for the graduate faculty. However, the powers and composition of this committee may be altered by majority vote of the graduate faculty. Proposed changes in this document will be accepted at any time but need to be brought up for vote only once per year, typically at the Spring semester meeting.

Coordinating Committee
The Coordinating Committee consists of the Directors of Graduate Studies representing St. Paul, Minneapolis, and Duluth; Head of the Department; Chairpersons of the Admissions and Recruiting Committees; Faculty representatives from each of the 4 BMBB divisions (divisions vote for representatives); and 2 student representatives. The Coordinating Committee members are appointed by a subcommittee consisting of the DGSs and the departmental head.

Committee Responsibilities: The responsibilities of the Coordinating Committee are to ensure the smooth operation of the graduate program in Biochemistry, Molecular Biology and Biophysics at the University of Minnesota. The following is a list of specific responsibilities of the Committee. This list is not exhaustive and the Committee is held responsible for other aspects of the program not considered here.

- Recommend stipend levels for graduate students (based on monitoring other institution stipend levels, recruiting success, and other factors).
- Institute and maintain procedures for monitoring graduate student progress above those required by the Graduate School.
- Act as a Curriculum Committee to which new course proposals and other proposed changes in the program are presented. Usually, subcommittees will deal with courses in the major fields. It is generally understood that faculty in each of the divisions of BMBB are responsible for determining the courses to be taught in that division. For example, the faculty in molecular biology will be expected to propose and maintain appropriate courses for that area. These courses will be the primary responsibility of the faculty committee in the molecular biology area, usually chaired by the representative of the Coordinating Committee.
- Recommendations for modifications will be forwarded to the Coordinating Committee for further discussion and approval. The Coordinating Committee maintains authority over course requirements. However, the Committee will attempt to accommodate proposals that are considered to be in the best interest of the program and do not disrupt other aspects of the program.
• Receive and act on any other proposals regarding the graduate program that are forwarded by the faculty through members of the Coordinating Committee.
• Serve as the Grievance Committee for an matter associated with the graduate program
• Review requests for appointment to the graduate faculty.
• The Committee must meet at least once per semester.

The Directors of Graduate Studies (DGSs)
In order for the BMBB graduate program to operate most effectively, two DGSs serve at a time. The term of office is 4 years (with typically a 2 year overlap). Both DGSs are designated as DGS (as opposed to associate DGS), and each is empowered with all privileges and responsibilities of a DGS as outlined by the Graduate School at the University of Minnesota.

Decisions relating to special aspects of the Program require approval by both DGSs, which is usually obtained informally. In the event that the two DGSs cannot reach agreement on various matters, the disputed topic must be brought before the Coordinating Committee. The following duties relate to special aspects of the BMBB program:

• Contact with new students entering the program, including organization of Orientation Week;
• Advise and approve coursework for 1st year students;
• Assign laboratory rotation advisors;
• Assign permanent thesis advisors;
• Assign Graduate Committee Members and oversee the Written and Oral Preliminary Examinations
• Review course performance of students and send necessary letters indicating inadequate performance;
• Recommend students for special graduate fellowships and travel awards;
• Assign graduate teaching appointments
• Communicate any decision regarded as important to joint cooperation between campuses;
• Evaluate requests for extensions;
• Work with Student Personnel Coordinator to update Graduate Program Handbook.

Admissions Committee
The Admissions and Recruiting committees are fully responsible for interactions with students up to the time when they have accepted an offer from our program. Responsibility for the students shifts to the DGSs for assignment of rotation advisors, etc. The Admissions Committee is composed of 4 faculty members, and assignments are made by DGSs and the Department Head. The Committee Chair will be determined in the same way. The term of service is 4 years. The following is a partial list of what is expected of the Admissions Committee.

• Respond to inquiries from prospective students. Special attention should be addressed to specific requests for information.
• Send follow up letters to encourage application;
• Screen the applications and send letter of acceptance, which is signed by the Committee Chair;
• Determine nominations for graduate excellence fellowships, which are due approximately February 1;
• Determine the recipients of any special scholarships that the program offers to prospective students; in consultation with the DGSs
• Determine admission of students who have received a MS degree in Biochemistry from the University of Minnesota and then apply for admission to the PhD program; in consultation with the DGSs.
• Make admission recommendations to the DGS on students that wish to be directly admitted to the BMBB PhD program. Direct admission into the program is an exception and typically reserved for students that have previously worked in a BMBB faculty member’s laboratory, who will become their PhD. advisor upon admission. Tuition and stipend will be paid upon matriculation by their advisor, who will agree in writing that he/she is prepared to do so if the student is admitted to the program.
Recruiting Committee
The Recruiting Committee is composed of a faculty member from each division, appointed by the Directors of Graduate Studies and the Departmental Head for a term of 4 years. The Committee Chair will be determined in the same way. The following is a partial list of what is expected of this Committee. This list is incomplete and the Committee is encouraged to expand the methods of effective recruiting with approval from the Coordinating Committee.

- Use the BMBB website (http://www.cbs.umn.edu/BMBB/) as effectively as possible as a recruiting tool.
- Respond to inquiries from prospective students. Special attention should be addressed to specific requests for information.
- Send follow-up letters to encourage application.
- Recruit acceptable candidates or assign individual faculty members to recruit individual students. Monitor recruitment to ensure smooth operation.
- Encourage and coordinate visits of prospective students and determine expense payments for the visits.
- Coordinate new activities designed to improve recruiting to the program. Examples might include faculty visits to area schools or a biochemistry symposium for prospective students.
- Work with other graduate programs to enhance the recruiting efforts of The University of Minnesota.

Student Representation
To ensure student representation in the BMBB graduate program and department, graduate students have opted to elect students to several positions: BMBB Student Presidents, Council of Graduate Students (COGS) Representative, and 2 College of Biological Sciences Committee Representatives. The nomination and election of students to these positions is the sole privilege and responsibility of BMBB graduate students. With the exception of the College of Biological Sciences positions, elections are annual, and each elected representative serves a 1-year term.

Hold a yearly BMBB graduate student meeting in September to introduce the new graduate students, to discuss any issues or policy decisions, and to organize any committees (e.g., holiday party committee, recreational events committee, grievance committee, student-invited seminar speaker committee) as needed.

- Serve on BMBB Graduate Program Coordinating Committee (each semester)
- Represent student views on policy issues and on membership in the Graduate Faculty
- Voting rights on some issues except membership in the Graduate Faculty
- Oversee the student-invited seminar speaker committee (Typically, at least 1 speaker will be invited per semester.)
- Organize the nomination and election of student representatives
- Facilitate the student seminar program
- Facilitate graduate student and faculty recruiting efforts
- Serve as an advocate for graduate students as needed
- Foster cohesiveness in the graduate program by facilitating social events, career development opportunities, etc.

Responsibilities of COGS Representatives

- Attend meetings as required
- Represent BMBB graduate student views on policy issues

The election of the student representatives is outlined below. The new appointment begins on August 15.

1. Electronic nominations to be solicited by Student Personnel Coordinator in June. All students in the BMBB Graduate Program in their 2nd to 4th years, inclusive, are eligible.
2. An email ballot listing nominees for each campus will be sent to all BMBB Graduate Students by July 1, to be returned by July 15.
Appointment of College of Biological Sciences Committees: Bylaw 2 for the CBS Constitution states that “The selection of graduate student representatives is based upon a rotational system of representation on the four standing committees, with the method of selection of each group’s representative at the group’s discretion. Eligible graduate students shall be those whose adviser is a faculty member in the College.” Students representing these committees meet an average of 4 times a year.

Graduate Faculty Policy
Obligations of Graduate Faculty in the BMBB Program: Faculty members are expected to participate broadly in the activities of the program. These activities include:

- Serving as academic adviser for BMBB students;
- Serving on graduate committees of students in program (including evaluation of Written and Oral Preliminary Examinations; student research reviews; and Final Oral Examinations);
- Teaching graduate courses;
- Serving in recruitment activities (including role of recruiter for new students; interviewing prospective students; attending Program Retreat);
- Serving on committees (e.g., Admissions, Coordinating, Recruiting);
- Attending program seminars (including departmental and student).
- While not every faculty member will necessarily participate in every one of these activities, each member is expected to be involved in several areas.

Graduate Faculty Appointments: All members of the BMBB Graduate Faculty must be either tenured or tenure track faculty of the University of Minnesota. Nomination of current University of Minnesota faculty shall be by any member of the Graduate Faculty. Nominations will be reviewed by the Coordinating Committee to evaluate what expertise and/or functions the nominee might contribute to the program. Examples of contributions are: expertise in an important research area of BMBB, outstanding research reputation, ability and willingness to teach in an area of importance to the program. The BMBB graduate faculty has vested authority for admission of faculty candidates to the BMBB program in the BMBB coordinating committee. Admission shall require a two thirds “super majority” of all members of that committee.

The graduate faculty must retain ample opportunity for input into these decisions. The BMBB Coordinating Committee shall have an initial vote to send a nomination forward to the full faculty for their consideration. This vote would require a simple majority. The candidate shall be required to present a seminar in the Twin Cities and be available to meet with interested faculty. The BMBB graduate faculty shall be informed in advance that this individual is a candidate. The graduate faculty shall then be invited to give feedback to the members of the coordinating committee prior to that committee’s final consideration of that candidate’s application.

If a unit of the University outside of the Departments of Biochemistry Molecular Biology and Biophysics wishes to initiate a search for a faculty member whom they believe would be appropriate for a graduate faculty appointment in BMBB, it should notify the Coordinating Committee of their intentions before initiating the search. This will enable a discussion of whether the planned position (regardless of who is hired) satisfies the basic principles of appointment in the BMBB Program.

If the Coordinating Committee approves the proposal, it will nominate 1 or more members of the graduate faculty to serve on the search committee. All recruiting seminars will be advertised to the graduate faculty in BMBB and interviews of the candidates will include time for visits with faculty members. At the end of the interview process, before an offer is made, the graduate faculty will vote on the candidates to indicate acceptability. Any candidates voted as unacceptable will not be appointed to the BMBB graduate faculty.

Members of the Coordinating Committee will vote on the suitability of candidates. New BMBB tenure-track hires will be automatically appointed as members to the BMBB program without the requirement of a nomination process.
Periodic Review of Full Membership on graduate faculty: All full members on the BMBB graduate faculty will be subject to a 5-year review. This review will be conducted by the Coordinating Committee at its spring meeting each year. Each faculty member will be evaluated based on the criteria listed in Section 1. The DGSs will collect information regarding involvement in program activities, publications, and funding from faculty prior to this meeting. After discussion, the Coordinating Committee will vote on whether to renew the appointment. Renewal will require a simple majority of Committee members present. Faculty members who are judged to be insufficiently active in the program will be contacted by the DGS to determine whether there is interest in remaining in the program. If so, the faculty member will be given 1 additional year to increase involvement. The Coordinating Committee will then review the faculty member at the following year’s spring meeting. If again, it is judged that involvement in programmatic activities is inadequate, the faculty member’s appointment will not be renewed.

If an advisor’s funding for a student is lost, it is the responsibility of the advisor to seek support from his/her home department.
## Appendix A

### BMBB Graduate Faculty Membership by Division

#### Synthetic Biology and Biotechnology Division
- Daniel Bond: dbond@umn.edu
- Mikael Elias: mhelias@umn.edu
- Jeffrey Gralnick: gralnick@umn.edu
- Romas Kazlauskas: rjk@umn.edu
- Arkady Khodursky: khodu001@umn.edu
- Michael Sadowsky: sadowsky@umn.edu
- Claudia Schmidt-Dannert: schmi232@umn.edu
- Janet Schottel: schot002@umn.edu
- Burckhard Seelig: seelig@umn.edu
- Michael Smanski: smanski@umn.edu
- Lawrence Wackett: wacke003@umn.edu

#### Molecular Biology Division
- Kenneth Adolph: adolp001@umn.edu
- Vivian Bardwell: bardw001@umn.edu
- Anja-Katrin Bielinsky: biel003@umn.edu
- Clay Carter: cjcarter@umn.edu
- Anath Das: dasx002@umn.edu
- Reuben Harris: rsh@umn.edu
- Thomas Hays: haysx001@umn.edu
- Eric Hendrickson: hendr064@umn.edu
- Fumiaki Katagiri: katagiri@umn.edu
- David LaPorte: dlaporte@umn.edu
- Louis Mansky: mansky@umn.edu
- Michel Sanders: sande001@umn.edu
- Jeffrey Simon: simon004@umn.edu
- Alexandra Sobeck: asobeck@umn.edu
- Margaret Titus: titus004@umn.edu

#### Metabolic & Systems Biology Division
- Edgar Arriaga: arriaga@umn.edu
- David Bernlohr: bern001@umn.edu
- Robert Brooker: brook005@umn.edu
- Yue Chen: yuechen@umn.edu
- Scott Dehm: dehm@umn.edu
- James Ervasti: jervasti@umn.edu
- Deborah Ferrington: ferri013@umn.edu
- Timothy Griffin: tgriffin@umn.edu
- Do-Hyung Kim: dhhkim@umn.edu
- Alex Lange: lange024@umn.edu
- Sharon Murphy: murph062@umn.edu
- Gary Nelsestuen: nelse002@umn.edu
- Laurie Parker: llparker@umn.edu
- Lincoln Potter: potter@umn.edu
- Robert Roon: roonx001@umn.edu
- Natalia Tretyakova: trety001@umn.edu
- Jeongsik Yong: jyong@umn.edu

#### Chemical & Structural Biology Division
- Hideki Aihara: aihara001@umn.edu
- Ian Armitage: armit001@umn.edu
- Wendy Gordon: wrgordon@umn.edu
- Fang Li: lifang@umn.edu
- John Lipscomb: lipsco01@umn.edu
- Hinh Ly: hly@umn.edu
- Hiroshi Matsuo: matsu029@umn.edu
- Douglas Ohlendorf: ohlen001@umn.edu
- Lawrence Que: larryque@umn.edu
- David Thomas: ddt@umn.edu
- Gianluigi Veglia: vegli001@umn.edu
- Carrie Wilmot: wilmo004@umn.edu

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**BMBB Duluth Faculty**

**Metabolic & Systems Biology**
- Grant Anderson: ander163@d.umn.edu
- Lester Drewes: ldrewes@d.umn.edu

**Chemical & Structural Biology**
- Benjamin Clarke: bclarke@d.umn.edu
- Kendall Wallace: kwallace@d.umn.edu

**Molecular Biochemistry**
- Matthew Anders: rcorner@d.umn.edu
- Robert Cormier: rcorner@d.umn.edu
- Anne Hinderliter: ahinderl@d.umn.edu
Appendix B

Procedures Common to Both Campuses

Safety Training
Federal, state and local regulations require all University employees, including graduate students, to undergo safety training. For graduate students, training includes laboratory safety standards (research laboratory safety plan), hazardous waste management, and, if applicable, radioisotope use, biosafety and use of controlled substances in research. Training times are offered when graduate study begins. Refresher courses are offered annually and when new protocols and/or hazardous chemicals are introduced to the laboratory or substantially changed. The safety training session given at orientation fulfills the requirement for initial safety training for laboratory safety standards and hazardous waste management.

People who work in laboratories that utilize radioisotopes must receive special training concerning safety in the use of radioactive materials. This training consists of viewing video and taking a test in the learning centers of the Bio-Medical Library (Minneapolis campus) or the Magrath Library (St. Paul campus). The use of some radioisotopes requires personnel to wear film badges and/or rings to monitor exposure to radiation. Film badge and/or ring request forms are available from the Radiation Protection Office, W140 Boynton Health Service or from David Okita at okita001@umn.edu.

Accident Reporting
Either the State of Minnesota Workers’ Compensation Plan or liability insurance covers work-related accidents or injuries. All injuries (examples include chemical burns, open wounds and eye injuries) should be treated without delay (see guidelines below) and must be reported to the department and the victim’s immediate supervisor as soon as possible (within 24 hours).

For a serious injury, call the emergency number 911. For a victim requiring critical care: render first aid and seek medical care at Boynton Health Service. For injuries occurring when Boynton Health Service is closed, use Fairview-University Medical Center Emergency Room, 420 Delaware Street SE (612-273-2700). For non-emergency medical attention you may use your own clinic or one of the Universities’ approved clinics posted by all lab telephones. All work-related accidents must be reported to the departmental safety administrative officer, David Okita, as soon as possible (within 24 hours), so that the appropriate forms can be completed and submitted.

Payroll
University employees (including student employees) are paid on a delayed bi-weekly payroll system. Pay periods are 2-weeks long, beginning on a Monday and ending on Sunday, 14 days later. Paychecks are available, by way of campus mail, in the departmental labs 10 days later on Wednesday afternoon. Forms to authorize automatic deposit can be obtained from the departmental payroll office personnel. Pay statements/Direct Deposit Authorizations are available online at “My One Stop” and the HRSS website (http://hrss.umn.edu) two days before payday.
Appendix C

BMBB GRADUATE TEACHING ASSISTANT GUIDELINES

Each year graduate students serve as Teaching Assistants (TAs) for a variety of undergraduate, graduate and professional courses. In order to help prepare students for an academic or educational career, teaching and its associated activities is required of all BMBB graduate students. Typically, PhD students are required to do 2 semester equivalents of teaching. To enhance the breadth of experience, every attempt is made to divide this between one laboratory-based course and one-lecture based course (see also BMBB Graduate Handbook pp. 13-14).

Typical teaching duties of graduate teaching assistants:

- Assisting students in a laboratory situation
- Preparing reagents and readying equipment for student use
- Contribute to grading notebooks and examinations
- Conducting tutorial and review sessions
- Entering course-related materials into a computer

Note: Writing exams is the responsibility of the instructor and cannot be transferred to a graduate TA! TAs are, however, strongly encouraged to contribute one or two exam questions to a midterm or final exam to enhance their teaching skills.

To enhance the teaching experience of TAs, instructors are encouraged to give TAs the opportunity to prepare and deliver one lecture during the semester. The instructor shall provide advice on material and presentation of the lecture and provide feedback after the class. For undergraduate courses, we require TAs to practice the lecture with the instructor before delivering it to the students in the course. This will ensure that the presented material is organized clearly and is appropriate for the course.

Workload of graduate TAs
BMBB graduate students hold a 25 percent graduate teaching assistant appointment during the semester they serve as TAs. This corresponds to a workload of 10 hrs on average per week over the course of the two-semester TA experience.

Formal evaluation of graduate teaching assistants:
TAs are formally evaluated by both the instructor in charge and by the students in the class. Such evaluations play a large part in faculty nominations for the Barnum teaching award.

Instructors shall ensure that TAs are evaluated by the students in the class. Appropriate forms can be obtained from the Department (see: http://eval.umn.edu/).

SETTA Test for International Students
Current University of Minnesota policy requires that all non-native English-speaking teaching assistants or prospective teaching assistants who are or will be assigned to teaching, tutoring or advising duties take an English language test. The test is being updated and is called SETTA test. This is an institutional version of the Test of Spoken English, developed by the Educational Testing Service and administered here on campus by the Minnesota English Center. Since all graduate students in the BMBB Graduate Program will eventually be expected to serve as a teaching assistant, 1st-year students are required to take this test at their earliest opportunity. To schedule the SETTA Test call the TA English Program/Faculty and TA Enrichment Program at 625- 3041 (http://www1.umn.edu/ohr/teachlearn/graduate/itap/schedule/index.html).

Additional guidelines for graduate teaching assistants:
- Talk with the instructor to make sure you know what she/he expects from you as a TA.
- Ask questions to clarify any issues concerning your TA responsibilities.
- Always be on time for class and never miss a class without having prior approval of the instructor.
• If you need to attend a scientific meeting that interferes with your ability to serve as a TA during the semester, make sure the instructor knows about the absence well in advance. Find out from the instructor if she/he wants you to make a replacement and/or how to handle the time away from class.
• Ask the instructor for feedback during the semester; find out if you are meeting the instructor’s expectations.
• Obey Student Code of Conduct at all times. Behave ethically and honestly with all students and staff. Report any suspicions of academic fraud or dishonesty to the instructor.
• Do not initiate or develop romantic relationships with students in your class during the semester you TA. Such relationships are permitted if the TA is no longer in a supervisory or oversight capacity.
• Provide honest feedback to the instructor during and after the course. Remember you are serving the dual role of advocate for both the faculty and the students.
• Do not take personal vacations or time-off during the semester you TA. If you are unavoidably called away from class, make sure you contact the faculty member in charge of the course.
• During the semester you TA, your responsibilities to the class outweigh your responsibilities to your laboratory and must take first priority. Having said that, do not slow down or stop your thesis research (work hard).

Students must inform a DGS of any other obligations or commitments that may conflict with teaching in any given semester. Students are strongly encouraged to inform a DGS about problematic issues, e.g. workload significantly higher than outlined above, assignment of teaching duties that are the responsibility of the instructor (e.g. writing of exams, recording grades), that arise during their teaching assistantship.

TAs should not be responsible for grading the entire exam of a class (especially if the class size is greater than 50 students.) Instructors are responsible for recording all grades, exam grades and the final class grade into the University of Minnesota grade submission web site. TAs should return graded exams to the instructor so that the instructor may review the exams before the grades are recorded. TAs may prepare a preliminary tally of exam grades to present to, or discuss with, the instructor.

TAs of laboratory classes are strongly advised to leave all recording of grades to the instructors. This will ensure uniform grading in these classes, which have multiple TAs participating in the grading of exams. The major objective for these measures is to keep the time commitment for TAs as close to an average of 10 hrs/week as possible and to fairness to the students.

The DGSs will reserve the right to not assign graduate TAs to courses directed by instructors that repeatedly overstep the responsibilities and workload of assigned graduate teaching assistants.

If you have any questions or concerns, please don’t hesitate to contact your DGSs.
Appendix D

University of Minnesota Policy Statements
Mutual Responsibilities in Graduate Education at the University of Minnesota

Introduction
A major purpose of graduate education at the University of Minnesota is to instill in each student an understanding of and capacity for scholarship, independent judgment, academic rigor, and intellectual honesty. Graduate education is an opportunity for the student to develop into a professional scholar. Graduate research and teaching assistantships offer an "apprenticeship" experience in the academic profession as well as financial support. It is the joint responsibility of faculty and graduate students to work together to foster these ends through relationships that encourage freedom of inquiry, demonstrate personal and professional integrity, and foster mutual respect. This shared responsibility with faculty extends to all of the endeavors of graduate students, as students, employees, and members of the larger academic community.

High quality graduate education depends on the professional and ethical conduct of the participants. Faculty and graduate students have complementary responsibilities in the maintenance of academic standards and the creation of high quality graduate programs. Excellence in graduate education is achieved when both faculty and students are highly motivated, possess the academic and professional backgrounds necessary to perform at the highest level, and are sincere in their desire to see each other succeed.

Suggested Principles for Mutual Roles and Responsibilities

The following principles illustrate what students should expect from their programs and what programs should expect from their students, to help achieve excellence in graduate education:

Principle 1: Information about Policies and Procedures
The University, collegiate units and graduate programs are responsible for providing students and prospective students with access to information about their graduate program, areas of specialization, degree requirements, and average time to completion of degrees. Graduate programs are responsible for providing access to information about graduate student financial support in the program, such as the prospects for fellowships, assistantships or other financial support and the proportion of students receiving financial support. In addition, graduate programs should provide students and applicants with information about career experiences of graduates of the program. All such information should be presented in a format that does not violate the privacy of individual students. Programs are encouraged to provide relevant information in their handbooks, websites or other readily accessible formats.

Students are responsible for keeping themselves informed about current policies of their program, their collegiate unit, and the University that affect graduate students. Students and alumni also have a responsibility to respond to program inquiries about their career development.

Principle 2: Communication about Academic Status
The collegiate unit and graduate programs are responsible for providing students with information about their individual academic status: who in the collegiate unit and in their graduate program is responsible for communicating to them about admission issues and progress through the degree program, how the communication will take place, and the possibility for appeal to a third party for assistance in resolving disputed issues.

Students are responsible for communicating with the collegiate unit and their graduate program about changes in their circumstances that affect their status and progress toward the degree.
Principle 3: Research Contributions
Individual faculty as research directors are responsible for providing students with appropriate recognition for their contributions at conferences, in professional publications, or in applications for patents. It is the faculty member's responsibility to clarify the principles for determining authorship and recognition at the beginning of any project.

Students are responsible for discussing their expectations regarding acknowledgment of research contributions or intellectual property rights with the appropriate person(s) in the research team, preferably early in the project.

Principle 4: University Governance
Departments and graduate programs are responsible for defining specific opportunities for student participation on committees as they deem appropriate. The University recognizes that graduate students make important contributions to governance and decision making at the program, department, college, Graduate School and University level; specific roles for participation are defined at each level by the relevant governing bodies.

Students are responsible for participating in University governance and decision making that enriches the campus community.

Principle 5: Respectful Employment Conditions
University faculty and staff are responsible for assuring that graduate students are able to conduct their work, as students or students/employees, in a manner consistent with professional conduct and integrity, free of intimidation or coercion. Students who are employees also have the protection of all University employment policies and laws. Graduate programs are responsible for providing clear communication to students about the possibility for appeal to a third party for assistance in resolving disputed issues.

Students are responsible for reporting unprofessional conduct to the appropriate body or person, as defined in the academic or employment grievance policy; they should be able to do so without fear of reprisal. Students are responsible for acting in a respectful and fair manner toward other students, faculty, or staff in the conduct of their academic work or work they may do in connection with an assistantship.

Principle 6: Conditions of Employment
The University (through its departments, research projects or other employing units) is responsible for providing to prospective graduate assistants a written offer of financial support before a response to the offer is required. Such communication must indicate their salary and the terms and conditions of their appointment, including the general nature of the work they will be performing, duration of employment, and whether and how this employment is tied to their academic progress. The details of specific teaching or research assignments may need to await later written clarification.

Students are responsible for accepting the conditions of employment only if they believe they are qualified and able to complete the tasks assigned. Students have a responsibility for communicating in writing any changes in their circumstances that affect their ability to fulfill the terms and conditions of their employment.

Principle 7: Safe Work Environment
Supervisors are responsible for providing a safe working environment for graduate students, and for developing and publicizing safety policies and training programs to achieve that goal.

Graduate students are responsible for helping to maintain a safe working environment, for adhering to safety policies, for participating in training programs and for reporting safety violations to the proper authority.

Principle 8: Responsible Conduct of Research
Students are responsible for carrying out their research in a responsible manner. The faculty and the Director of Graduate Studies (DGS) of the graduate program are responsible for ensuring that students receive training and guidance in the responsible conduct of research as appropriate for each field.
Other University Documents

These documents may provide information and guidance relevant to the graduate education experience:

- Board of Regents Policy: Code of Conduct
- Board of Regents Policy: Academic Freedom and Responsibility
- Board of Regents Policy: Student Conduct Code

Human Rights Statement

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation. Inquiries regarding compliance may be directed to, Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall, University of Minnesota, 100 Church Street S.E., Minneapolis, MN 55455, (612) 624-9547. http://www.eoaffact.umn.edu/index.html

Sexual Harassment Statement

Sexual harassment subverts the mission of the University, and threatens the careers of students, faculty, and staff. The All-University Policy Statement on Sexual Harassment, approved by the University Senate in 1984, defines sexual harassment as follows: Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitutes sexual harassment when (1) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or academic advancement, (2) submission to or rejection of such conduct by an individual is used as the basis for employment decisions or academic decisions affecting such individual, or (3) such conduct has the purpose or effect of unreasonably interfering with an individual’s work or academic performance or creating an intimidating, hostile, or offensive working or academic environment. Information and guidance regarding sexual harassment are available from the Office of Equal Opportunity and Affirmative Action, which is also the office for complaints of sexual harassment. All inquiries are held in strict confidence.

Standards of Student Conduct

The University is concerned with matters that may impinge upon academic achievement and integrity and with maintaining an educational climate. Other matters of concern include preserving and protecting the rights, health, property and safety of members of the University community. Thus, specific disciplinary offenses actionable by the University include scholastic dishonesty, falsification, disorderly conduct on the campus, theft and property damage, disruptive noise and demonstrations and so forth. The official regulations and procedures concerning inappropriate and illegal behavior are contained in A Statement of Standards of Student Conduct Enforceable by University Agencies, a copy of which may be obtained from http://www1.umn.edu/oscai/
Appendix E Other Helpful Information/Links

- **Bookstore**: (5-6000)
- **Campus Escort Service**: Accompany you anywhere within the campus vicinity, 4-WALK
- **Center for Writing**: (5-1893)
- **Child Care**
- **Computer and Internet Support**

- **Counsel of Graduate Students (COGS)**: Represents graduate students at the University and is recognized by the Graduate School. COGS is an open and democratic organization comprised of graduate students from across the University. COGS provide opportunities for graduate students to participate actively in University administrative and policy-making decisions, as well as social and cultural programming and job training. The backbones of the organization are Department Representatives, composed of students selected by all degree-granting programs at the University. COGS also elects representatives to serve on University-wide committees, on Policy and Review Councils, and in the University Senate. Together, we represent over 10,000 students.

- **Community of Scholars Program**: The Community of Scholars Program (COSP) works towards creating the institutional environment required for the academic achievement of graduate students. The Program assists under-represented students (U.S. Citizens and permanent residents) to more fully participate in the University, develop supportive relationships with advisors and mentors; build a sense of community through academic seminars and professional development workshops; and connect students to the Twin Cities community through research and civic engagement opportunities.

- **Graduate School Catalog**: Graduate school policies and information
- **Graduate School Student Services**: 4-3490

- **Housing**: Information on campus and off campus housing. Additional online resources are available at:
  - Commonwealth Terrace Cooperative
  - Como Student Community Cooperative
  - Off-Campus Housing

- **Disability Services**: Provides assistance with academic accommodations for students with diagnosed, severe, and persistent mental health conditions.

- **International Student and Scholar Services (ISSS)**: International Student and Scholar Services (ISSS) is the office dedicated to serving the University of Minnesota's international community. Its primary mission is to assist international students and scholars in successfully accomplishing the goals that brought them to the University, by using all available resources.

- **Legal Services**: The University Student Legal Service provides legal counsel and services to fee-paying students for little or no cost. Advice is offered on consumer matters, tenants’ rights, immigration, family law, misdemeanor and DWI defense, and employment problems. For more complex legal problems, students are referred to other attorneys.

- **Mental Health Resources**: Graduate School can be stressful at times. The University offers mental health services. The Mental Health Clinic at Boynton Health Services provides phone and walk-in assessment on an urgent basis, as well as scheduled medical evaluations and management, chemical health assessment and
counseling, and individual, couples, and group therapy. Additional resources for the management of personal stress are available through the Health Promotion Department at Boynton Health Services.

- **University Counseling and Consulting Services**: Provides confidential counseling programs with professional counselors who can help students address academic stresses, personal and relationship concerns, or feelings of anxiety or depression. Walk in counseling is available.

- Motorist Assistance Program: Unlocking vehicles, providing jump starts, and changing flat tires. To request assistance, call 6-PARK.

- **Parking/Transportation**: Information on the parking and transportation options available to students

- **Student Academic Grievances**: 4-1030

- **Student Dispute Resolution Center**: 4-7272

- **Office for Equity and Diversity**: Women’s Center
## Appendix F Journal Club Attended By BMBB Members

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Coordinator</th>
<th>Location</th>
<th>Time</th>
<th>Alt. Contact</th>
</tr>
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<tbody>
<tr>
<td>Cancer Bio</td>
<td>25</td>
<td>Carol Lange <a href="mailto:lange047@umn.edu">lange047@umn.edu</a></td>
<td>1-125 CCRB</td>
<td>12 – 1 pm Wednesdays</td>
<td></td>
</tr>
<tr>
<td>Membrane</td>
<td>15-20</td>
<td>Dave Thomas <a href="mailto:ddt@ddt.umn.edu">ddt@ddt.umn.edu</a></td>
<td>1-136 NHH</td>
<td>11:15 am Mondays</td>
<td>Razvan Cornea</td>
</tr>
<tr>
<td>Molecular &amp; Metabolism</td>
<td>30-40</td>
<td>Dave Bernlohr <a href="mailto:bernl001@umn.edu">bernl001@umn.edu</a></td>
<td>G-205 Mayo NMR Conference Room</td>
<td>3:30 PM Mondays</td>
<td></td>
</tr>
<tr>
<td>Muscle</td>
<td>10-15</td>
<td>Dave Thomas <a href="mailto:ddt@ddt.umn.edu">ddt@ddt.umn.edu</a></td>
<td>1-136 NHH</td>
<td>10:15 am Mondays</td>
<td>Joe Muretta</td>
</tr>
<tr>
<td>Structural Biology</td>
<td>30</td>
<td>Gianluigi Veglia <a href="mailto:vegli001@umn.edu">vegli001@umn.edu</a></td>
<td>4-101 NHH</td>
<td>12:00 – 1:00 pm Thursdays</td>
<td></td>
</tr>
<tr>
<td>Virology</td>
<td>20</td>
<td>Steve Rice <a href="mailto:ricex019@umn.edu">ricex019@umn.edu</a></td>
<td>18-211 MoosT</td>
<td>12:00 – 1:00 pm Wednesdays</td>
<td></td>
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*Clubs that meet regularly and have at least 6 regularly participating faculty attending will be acceptable for Student Seminar presentation credit, but 3 Thesis committee members must be present to evaluate and comment. Contact the club coordinator or alternate contact for more information and to join the group.