# TABLE OF CONTENTS

Director’s Statement .............................................................................................................. 1

Acknowledgments .................................................................................................................. 1

Major Revisions of the SMB Graduate Handbook ................................................................. 2

Admissions Information ......................................................................................................... 4

Faculty Research Interests and e-mail addresses ................................................................... 6

Molecular Biosciences Graduate Student Association (MBGSA) ............................................ 9

A. The MBGSA Survival Guide
   1. Before You Get to Pullman .......................................................................................... 10
   2. Upon Your Arrival in the Palouse ............................................................................. 11
   3. Advice for Your First Year of Graduate School ....................................................... 14
   4. Quick Contact Information ...................................................................................... 16

B. First Year Graduate Student Orientation Guide
   1. Check-in and Orientation .............................................................................................. 17
   2. Annual Retreat ........................................................................................................... 17
   3. Individual Student Academic Advising ...................................................................... 17
   4. Teaching Assistant Training and Assignment ......................................................... 18
   5. Personal Action Form ................................................................................................. 18
   6. Mailbox, Student Identification Card and WSU Network Access ............................. 18
   7. Safety Training and Responsible Conduct in Research Training ............................ 19
   8. Orientation Wrap-up .................................................................................................. 19
   9. Establishing Washington State Residency .................................................................. 19
  10. International Student Information .............................................................................. 20

C. Thesis and Dissertation Graduate Programs
   1. Laboratory Rotations .................................................................................................... 21
   2. Coursework and Research .......................................................................................... 21
   3. Graduate Assistantship .............................................................................................. 22
   4. Teaching Requirement .............................................................................................. 22
   5. Seminars and Faculty mini-seminars ......................................................................... 22
   7. Selection of Thesis/Dissertation Committee .............................................................. 24
   8. Expectations for Committee Meetings ...................................................................... 24
   9. Submission of Program of Study .............................................................................. 24
  10. Research Proposals and Preliminary Examination ...................................................... 25
  11. Annual Review of Graduate Students ........................................................................ 25
  13. Final Examination ...................................................................................................... 26
14. Changing from M.S. to Ph.D. Program ................................................................. 27

15. Typical Timeline for Thesis M.S. Program
    First Year ........................................................................................................... 28
    Second Year and Subsequent Semesters ......................................................... 29

16. Typical Timeline for Dissertation Ph.D. Program
    First Year ........................................................................................................... 31
    Second Year ..................................................................................................... 32
    Third Year ......................................................................................................... 33
    Fourth and Subsequent Years ......................................................................... 34

D. Required and Elective Courses for Graduate Students ........................................... 35

E. Seminar Information (MBioS 579) ........................................................................ 37

F. Proposals
    1. General Guidelines ......................................................................................... 45
    2. Proposal I written component ....................................................................... 48
    3. Proposal II written component ..................................................................... 50
    4. General procedures for oral examination component ................................... 52

G. Graduate Student Annual Review ...................................................................... 54

H. Student Conduct and Academic Integrity ............................................................ 56

I. Academic Regulation and Procedures
    1. Definition of Good Standing for SMB graduate students ............................. 57
    2. Earned Credits, Thesis/Dissertation Credit and GPA Calculations ............. 57
    3. Continuous Enrollment Policy and Transfer of Graduate Credits ............... 58
    4. Academic Reinstatement, Termination and Re-Enrollment .......................... 58
    5. Exceptions to Policy and Procedure ............................................................ 59
    6. Leave and Vacation Time ............................................................................. 59

J. Travel Awards ...................................................................................................... 61

K. Excellence Awards to Graduate Students ............................................................ 62

L. SMB Ombudsman ............................................................................................... 63

M. Non-Thesis Master’s Degree
    1. Graduate School Course Requirement ......................................................... 64
    2. Academic Standard ....................................................................................... 64
    3. Selection of Non-thesis M.S. Committee ....................................................... 64
    4. Program of Study ........................................................................................... 64
    5. MBioS 702 Requirement .............................................................................. 64
    6. Final Master’s Examination ......................................................................... 65
Molecular Biosciences Graduate Minors

MOLECULAR BIOSCIENCES FORMS

Advising Checklist

Student Conduct and Academic Integrity Contract

Laboratory Rotation Review Form

Cover Page for Research Proposal I

Report Form for Research Proposal I

Cover Page for Research Proposal II

Report Form for Research Proposal II

Graduate Student Research Review Report

Annual Review Form

Cover Page for Non-Thesis degree

Application for SMB Travel Award

Graduate Student Travel Authorization

GRADUATE SCHOOL FORMS LIST
DIRECTOR'S STATEMENT

Welcome to the SMB Graduate Program at Washington State University! Here you will find faculty, staff, graduate and postgraduate trainees who are committed to helping you develop the skills necessary for self-directed learning that can take place over the course of your lifetime. We also want you to hone your professional and personal skills to optimize your success in securing the position of your choice. In short, we are here to do everything we can to help you excel.

This graduate booklet is a great starting place. Within you will find key information that will help you navigate through your entire graduate experience. While all of topics are important and informative, I especially encourage you to read about our Graduate Student Association (MBGSA). Participating in this Association provides a great avenue for getting to know faculty, staff, and students. Your willingness to become actively involved with this organization offers you an opportunity for shared ownership and leadership of the programs offered by SMB. So, be active and become engaged. We need your ideas and insights.

Finally, I want to pay special tribute to all of those listed below. These individuals have worked hard to produce this handbook. Their combined efforts make our program great. You are in good hands, and we are delighted to add you to our growing family.

Cheers,

John H. Nilson, PhD
Edward R. Meyer Distinguished Professor
Director, School of Molecular Biosciences

ACKNOWLEDGMENTS

This handbook is the compilation of documents and information from many sources. Some parts come from the WSU Graduate School, but many are derived from the efforts of current and former SMB faculty, faculty associates, graduate students and staff. There are too many valued contributors to acknowledge each individually, and the list grows with each yearly update. However, special thanks go to the former Associate Directors for Graduate Studies who generated many of the initial documents (Dr. Kathleen (Kotty) Postle and Dr. Kwan Hee Kim—who had the vision to assemble the first SMB Graduate Handbook) and to Dr. Lisa Gloss, the Associate Director for Graduate Studies from 2007-2013; current and past members of the Graduate Studies Committee; current and past officers of the Molecular Biosciences Graduate Student Association (MBGSA)—especially Matt Stump and Trisha Brock who put together the original Survival Guide for first year students; and Dr. Ron Brosemer for his detailed and witty instructions for student seminar presentations.

A hearty thank you to all contributors!

Mary Hunzicker-Dunn
Associate Director of Graduate Studies
MAJOR REVISIONS OF THE SMB GRADUATE HANDBOOK

Section numbers refer to the 2013 edition.

Changes in the 2012-2013 edition:
1. Section C.1 and C.16: Change in optional summer rotation from eight week to six weeks.
2. Section C.16 – Fifth Semester and Section F.3 – timeline: Change in designation of Second Proposal from MBioS 593, graded as pass/fail to MBioS 800 (S/U).
3. Policy change instituted by the Graduate School
   - Section C.15 and 16, Section H.3: MBioS 700, 702 or 800 grading. New grading rubric: S (satisfactory) or U (unsatisfactory). Unsatisfactory (U) grade replaces “F” grade and does not carry any quality points nor is it calculated in the grade point average (GPA).
   - Section H.4, Section I.2.e and the Student Contract/Academic Integrity Contract: Academic Integrity and research violations. Students found responsible for academic integrity violations in their research or special problems/directed research may receive a “U” grade for unsatisfactory progress for that term. Repeat and/or serious offences may result in referral to the conduct board and expulsion from WSU. In addition, academic integrity violation may result in the loss of teaching and/or research assistantships.

Changes in the 2011-2012 edition:
1. Change in application procedures for international students regarding transcripts.
2. Section F.1 Proposal guidelines changed to meet recent format changes for NIH proposals.
   a. Decreased page limits (10 and 13 for First and Second Proposal, respectively).
   b. Changes in titles and expectations for sections of the proposals.
3. Policy changes instituted by the Graduate School
   - Section C.12 and 13: Ph.D. students will upload a PDF file of the completed draft of their dissertation to UMP/Proquest 10 working days before their final defense date, rather than taking a copy to the Graduate School.
   - Section C.16—Final semester: Ph.D. students have five working days after their defense to upload a PDF file of their final corrected dissertation to UMP/Proquest.
   - Section I.2.c: As of Fall term 2011, the Graduate School is instituting the policy that “I” grades will change to an “F” grade after one year.
4. Annual Review Form merged with Research Review Form to reduce paperwork.

Changes in the 2010-2011 edition:
1. Further revisions to changes from 2009-2010:
   - Sections C.15, 16: Typical timeline for thesis M.S. and dissertation Ph.D. programs: All M.S. and Ph.D. students should enroll in MBioS 700 and MBioS 800, respectively, to bring their total credits to 12 hours. Students who have not yet passed First Proposal no longer need to enroll in MBioS 600 (Special Problems).
   - Section D: The two new core courses now have their own designation.
     MBioS 507, Critical Analysis of Scientific Literature
     MBioS 508, Quantitative Approaches in Molecular Biosciences
2. Changes related to the reduction in required credit hours (from 34 to 21) for the Ph.D. program are described in Sections C.5, 9, 15 and 16 and Section D, including courses that are no longer offered for graded credit.

3. In several places (e.g. Typical Timeline and List of Courses), the new requirement for Phil 530 (Bioethics) is indicated.

**Changes in the 2009-2010 edition:**

1. **Format:** The location and order of several sections, particularly in Parts B and C, have been revised to reduce redundancy and improve organization. All SMB forms have been moved to the end of the Handbook.

2. **Policy changes (approved by the Graduate Studies Committee and SMB faculty as appropriate):**

   **Section C:**
   - C.1. SMB has returned to eight-week rotations.
   - C.7. Clarification about committee composition and non-tenure-track faculty
   - C.10. Change in topic of Second Proposal to continuation of dissertation project
   - C.15. Typical timeline for thesis M.S. and dissertation Ph.D. programs:
     - Students should enroll for a total of 12 credits, rather than 18.
     - The Graduate School is using enrollment in 700 and 800 courses to track M.S. and Ph.D. students. Before completion of the First Proposal, M.S. and Ph.D. students used MBioS 600 (Special Problems) to bring their total credits to 12 hours. Now, M.S. and Ph.D. students should enroll for 1 credit of MBioS 700 and MBioS 800, respectively, as well as the necessary number of hours of MBioS 600.

   **Section D.** Two new core courses were added, listed as MBioS 568 Advanced Topics …
   - Fall (1 credit): Skills for Critical Assessment of Molecular Biosciences Literature
   - Spring (1 credit): Quantitative Approaches in Molecular Biosciences

   **Section F.2 and F.3.** Format and guidelines for First and Second Proposal documents, inclusion of the second seminar for Ph.D. students as the research review component of the Preliminary Examination and Graduate School rules on Graduate Mentor Fellow participation.

**Changes in the 2008-2009 edition:**

1. **Sections C.6-C.8.** Selection of Thesis/Dissertation Committee; Expectations for Committee Meetings:
   - Added clarification that at least two members of each committee must be core SMB faculty, regardless whether the committee chair is an SMB faculty or associate faculty member.
   - Added requirement for students to prepare a progress report before each committee meeting and for the committee to document the results of the meeting.

2. **Added Section D.** list of “Required and Elective Courses for Graduate Studies”

3. **Section F.** Proposal I and Proposal II “Oral Defense and Evaluation”
   - Added requirement that a faculty member other than the thesis advisor will be designated as “an acting chair” to run the examination meeting.

4. **Section I.** Academic Regulations, Procedures and Responsibilities
   - Added statement that substitution of transfer courses for the core courses will occur only extraordinary circumstances.
ADMISSIONS INFORMATION

The School of Molecular Biosciences offers Ph.D. and M.S. degrees in Molecular Biosciences with discipline-specific options in Biochemistry, Genetics & Cell Biology and Microbiology.

- Students wishing to pursue graduate studies in SMB should have an undergraduate major in biochemistry, biophysics, cell biology, genetics, microbiology, biology, chemistry or closely related fields.
- Expected undergraduate coursework includes general biology, general and organic chemistry, biochemistry, physics, calculus and/or statistics, and some advanced biology courses (such as genetics, cell, developmental or molecular biology or microbiology).

The following documents should be submitted before the departmental deadline of December 15.

**All students (domestic and international):**

1. ** Graduate School Application and $75 application fee**
   Forms and instructions are available through the [WSU Graduate School](https://www.wsu.edu/graduate) website.

2. **SMB Graduate Application Form**
   The School of Molecular Biosciences requests supplemental information on the SMB Application Form that is separate from the Graduate School application. The SMB document includes guidelines for your personal statement to describe your interests, research accomplishments, and academic awards. The [SMB Application Form](http://smb.wsu.edu) is available on-line through the SMB web site.

3. **Standardized tests: general GRE and TOFEL**
   Self-reported scores should be included on the SMB graduate application. International students should report a recent TOFEL score as well.

4. **Three letters of recommendation**
   Letters should be submitted through the “on line” application with the Graduate School.

5. **Transcripts:**
   For domestic students, official transcripts should be sent by the school(s) directly to the WSU Graduate School.

**International Students:**

1. Applicants who attended school outside the United States or Canada must submit: **Transcripts**, mark sheets, grade reports, or examination results, along with degree certificates from all higher education institutions attended outside the United States or Canada. When sending official transcripts from schools located in non-English-speaking countries, have each institution submit both the English translation plus an original language record.

2. **WSU requires TOFEL scores**
   For international applicants who have not earned a degree from a US institution, a TOFEL score of at least 100 (internet based exam) is required, and the test date must be within two years prior to the expected admission date.
Evaluation of completed applicant files will begin on December 15th for admission for the Fall semester of the next calendar year. Admission for the Spring semester is only offered in exceptional situations; applicants are evaluated on a case-by-case basis.
**RESEARCH ACTIVITIES OF GRADUATE TRAINERS, Fall 2013**

See our web page for more information: [http://molecular.biosciences.wsu.edu/faculty/smb_fac_research.html](http://molecular.biosciences.wsu.edu/faculty/smb_fac_research.html)

<table>
<thead>
<tr>
<th>NAME</th>
<th>RESEARCH AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aguilar-Carreno, Hector *</td>
<td>Entry mechanisms of highly pathogenic zoonotic viruses into mammalian cells</td>
</tr>
<tr>
<td><a href="mailto:hagular@vetmed.wsu.edu">hagular@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Alderete, John</td>
<td>The study of parasite and host cell-tissue interactions focused on proteins that contribute to infection and disease pathogenesis in <em>Trichomonas vaginalis</em></td>
</tr>
<tr>
<td><a href="mailto:alderete@vetmed.wsu.edu">alderete@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>An, Wenfeng</td>
<td>Mammalian LINE-1 retrotransposons and application for mouse mutagenesis</td>
</tr>
<tr>
<td><a href="mailto:wenfengan@vetmed.wsu.edu">wenfengan@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Bankhead, Troy *</td>
<td>Antigenic variation in the Lyme disease spirochete, <em>Borrelia burgdorferi</em></td>
</tr>
<tr>
<td><a href="mailto:tbankhead@vetmed.wsu.edu">tbankhead@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Black, Margaret</td>
<td>Combination of molecular evolution, pathway engineering and extensive in vitro and in vivo analyses to improve and evaluate suicide genes for gene therapy of cancer</td>
</tr>
<tr>
<td><a href="mailto:blackm@vetmed.wsu.edu">blackm@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Brayton, Kelly *</td>
<td>Infection biology of the tick-borne pathogen <em>Anaplasma marginale</em></td>
</tr>
<tr>
<td><a href="mailto:kbrayton@wsu.edu">kbrayton@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Brown, Wendy*</td>
<td>Bovine helper T cell response to the vector-borne hemoparasites, <em>Babesia bovis</em> and <em>Anaplasma marginale</em>, and defining protective immune mechanisms and targeted protein antigens.</td>
</tr>
<tr>
<td><a href="mailto:wbrown@vetmed.wsu.edu">wbrown@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Browse, John *</td>
<td>Lipid and membrane biochemistry; pathways and regulation of lipid synthesis and membrane formation in higher plants; chilling and freezing tolerance in plants</td>
</tr>
<tr>
<td><a href="mailto:jab@wsu.edu">jab@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Call, Douglas *</td>
<td>Evolution and persistence of antibiotic resistance; molecular epidemiology; comparative genomics, transcriptomics, and proteomics of pathogens; detection pathogens in complex matrices; and aquaculture health</td>
</tr>
<tr>
<td><a href="mailto:drcall@vetmed.wsu.edu">drcall@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Chai, Weihang #</td>
<td>Telomere structure, maintenance and function</td>
</tr>
<tr>
<td><a href="mailto:wchai@wsu.edu">wchai@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Cooper, Cynthia ### ***</td>
<td>Zebrafish developmental mechanisms</td>
</tr>
<tr>
<td><a href="mailto:cdecooper@vancouver.wsu.edu">cdecooper@vancouver.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Davis, William B.</td>
<td>Electron transfer mechanisms in proteins, DNA, RNA, and their intramolecular complexes; dynamics of protein-protein and protein-DNA/RNA interactions</td>
</tr>
<tr>
<td><a href="mailto:wbdavis@vetmed.wsu.edu">wbdavis@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Gloss, Lisa</td>
<td>Macromolecular assembly and folding of proteins: the core histones of the nucleosome and halophilic enzymes</td>
</tr>
<tr>
<td><a href="mailto:lmgloss@vetmed.wsu.edu">lmgloss@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Griswold, Michael</td>
<td>Biochemistry and molecular biology of mammalian spermatogenesis with emphasis on testicular somatic cells</td>
</tr>
<tr>
<td><a href="mailto:mgriswold@vetmed.wsu.edu">mgriswold@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Harding, Joseph *</td>
<td>Lipids in membrane function and cellular signaling</td>
</tr>
<tr>
<td><a href="mailto:hardingj@vetmed.wsu.edu">hardingj@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Haseltine, Cynthia</td>
<td>Mechanisms of homologous recombination and cellular responses to DNA damage in hyperthermophilic archaeal microbes.</td>
</tr>
<tr>
<td><a href="mailto:chaseltine@vetmed.wsu.edu">chaseltine@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>NAME</td>
<td>RESEARCH AREA</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Hassold, Terry</td>
<td>Meiotic chromosome abnormalities</td>
</tr>
<tr>
<td><a href="mailto:terryhassold@vetmed.wsu.edu">terryhassold@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Her, Chengtao</td>
<td>The roles of mismatch repair genes in human cancer</td>
</tr>
<tr>
<td><a href="mailto:cher@vetmed.wsu.edu">cher@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Hunt, Patricia</td>
<td>Meiosis in mammalian germ cell development</td>
</tr>
<tr>
<td><a href="mailto:pathunt@vetmed.wsu.edu">pathunt@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Hunzicker-Dunn, Mary</td>
<td>Elucidate the signaling pathways by which the prototypical glycoprotein</td>
</tr>
<tr>
<td><a href="mailto:mehd@vetmed.wsu.edu">mehd@vetmed.wsu.edu</a></td>
<td>hormones follicle stimulating hormone (FSH) and luteinizing hormone (LH)</td>
</tr>
<tr>
<td></td>
<td>signal to initiate cellular responses of differentiation and proliferation</td>
</tr>
<tr>
<td>Kahn, Michael</td>
<td>Biochemistry, genetics and physiology of metabolism in the</td>
</tr>
<tr>
<td><a href="mailto:kahn@wsu.edu">kahn@wsu.edu</a></td>
<td>nitrogen-fixing symbiosis between rhizobia and legume plants</td>
</tr>
<tr>
<td>Kang, ChulHee *</td>
<td>Looking for new therapeutic strategy by understanding</td>
</tr>
<tr>
<td><a href="mailto:chkang@wsunix.wsu.edu">chkang@wsunix.wsu.edu</a></td>
<td>DNA/RNA/Protein-Protein interaction via Crystallography and Protein</td>
</tr>
<tr>
<td></td>
<td>engineering</td>
</tr>
<tr>
<td>Karatsoreos, Ilia *</td>
<td>Biological rhythms, gonadal hormones, and neural plasticity</td>
</tr>
<tr>
<td><a href="mailto:iliak@vetmed.wsu.edu">iliak@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Kim, Kwan Hee</td>
<td>Vitamin A signaling circuitry in reproductive organs; Reproductive</td>
</tr>
<tr>
<td><a href="mailto:khkim@vetmed.wsu.edu">khkim@vetmed.wsu.edu</a></td>
<td>toxicology by plasticizer phthalates</td>
</tr>
<tr>
<td>Knodler, Leigh *</td>
<td>Salmonella-intestinal epithelial cell interactions</td>
</tr>
<tr>
<td><a href="mailto:lknodler@vetmed.wsu.edu">lknodler@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Konkel, Michael</td>
<td>Bacterial pathogenesis, identification and characterization of virulence</td>
</tr>
<tr>
<td><a href="mailto:konkel@vetmed.wsu.edu">konkel@vetmed.wsu.edu</a></td>
<td>determinants in Campylobacter jejuni</td>
</tr>
<tr>
<td>Lange, B. Mark *</td>
<td>Pathways leading to natural products (with an emphasis on isoprenoids )</td>
</tr>
<tr>
<td><a href="mailto:lange-m@wsu.edu">lange-m@wsu.edu</a></td>
<td>using functional genomics and systems biology approaches</td>
</tr>
<tr>
<td>Lau, Audrey *</td>
<td>Host-pathogen interaction using apicomplexan as the model system</td>
</tr>
<tr>
<td><a href="mailto:laua@wsu.edu">laua@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Nicola, Anthony *</td>
<td>Cell biology of virus-host interactions, herpesviruses, viral entry,</td>
</tr>
<tr>
<td><a href="mailto:nicola@vetmed.wsu.edu">nicola@vetmed.wsu.edu</a></td>
<td>membrane fusion, envelope glycoproteins, viral pathogenesis</td>
</tr>
<tr>
<td>Nilson, John H.</td>
<td>Regulation of pituitary and ovarian gene expression with an emphasis on</td>
</tr>
<tr>
<td><a href="mailto:jhn@wsu.edu">jhn@wsu.edu</a></td>
<td>genomic biology</td>
</tr>
<tr>
<td>Oatley, Jon</td>
<td>Molecular mechanisms that control the fate of germline stem cells and</td>
</tr>
<tr>
<td><a href="mailto:joatley@vetmed.wsu.edu">joatley@vetmed.wsu.edu</a></td>
<td>the determinants of the stem cell niche in mammalian testes</td>
</tr>
<tr>
<td>Pru, James *</td>
<td>Molecular events coordinating the physiology of embryo implantation</td>
</tr>
<tr>
<td><a href="mailto:jpru@wsu.edu">jpru@wsu.edu</a></td>
<td>using the mouse and domestic ruminants as model organisms</td>
</tr>
<tr>
<td>Rodgers, B. Dan *</td>
<td>Molecular endocrinology and genomics of muscle development</td>
</tr>
<tr>
<td><a href="mailto:danrodgers@wsu.edu">danrodgers@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Roberts, Kenneth P. #</td>
<td>Epididymal sperm maturation and sperm function</td>
</tr>
<tr>
<td><a href="mailto:kenroberts@wsu.edu">kenroberts@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>NAME</td>
<td>RESEARCH AREA</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Shelden, Eric</td>
<td>Cytoskeletal regulation and dynamics during injury, migration and differentiation of mammalian cells.</td>
</tr>
<tr>
<td><a href="mailto:eshelden@vetmed.wsu.edu">eshelden@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Smerdon, Michael</td>
<td>Modulation of DNA Damage and Repair in Eukaryotes by Chromatin Structure and DNA Processing</td>
</tr>
<tr>
<td><a href="mailto:smerdon@wsu.edu">smerdon@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Spencer, Thomas *</td>
<td>Developmental Biology and function of the uterus and placenta</td>
</tr>
<tr>
<td><a href="mailto:thomas.spencer@wsu.edu">thomas.spencer@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Thomasow, Linda *</td>
<td>Molecular genetics of bacterial-plant and bacterial-fungal interactions</td>
</tr>
<tr>
<td><a href="mailto:thomasho@mail.wsu.edu">thomasho@mail.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Thorgaard, Gary H. *</td>
<td>Genetic manipulation, mapping and analysis in trout and salmon</td>
</tr>
<tr>
<td><a href="mailto:thorglab@wsu.edu">thorglab@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Tissot, Brian *###</td>
<td>Ecology and conservation of marine invertebrates and fishes in tropical and temperate ecosystems by quantitative statistical approaches combined with geospatial tools</td>
</tr>
<tr>
<td><a href="mailto:tissot@vancouver.wsu.edu">tissot@vancouver.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Trobridge, Grant *</td>
<td>Oncogene discovery using retroviruses and Stem cell gene therapy for HIV infection</td>
</tr>
<tr>
<td><a href="mailto:grant.trobridge@wsu.edu">grant.trobridge@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Vadyvaloo, Viveka *</td>
<td>Arthropod-borne zoonotic infectious diseases, including the etiological agent of the bubonic plague, Yersinia pestis</td>
</tr>
<tr>
<td><a href="mailto:vvadyvaloo@wsu.edu">vvadyvaloo@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Wang, Susan</td>
<td>Mechanistic enzymology (&quot;unusual&quot; enzyme catalysis) and antibiotic biosynthesis</td>
</tr>
<tr>
<td><a href="mailto:suewang@vetmed.wsu.edu">suewang@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Watts, Jennifer L.</td>
<td>Genetics and genomics of lipid metabolism and fat storage in C. elegans</td>
</tr>
<tr>
<td><a href="mailto:jwatts@vetmed.wsu.edu">jwatts@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Wayman, Gary *</td>
<td>Determine the molecular and cellular mechanism by which synaptic activity and neurotrophic factors influence neuronal development</td>
</tr>
<tr>
<td><a href="mailto:waymang@vetmed.wsu.edu">waymang@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Wyrick, John</td>
<td>Regulation of eukaryotic genome expression; histone acetylation; and the development of new functional genomic and bioinformatic tools</td>
</tr>
<tr>
<td><a href="mailto:jwyrick@vetmed.wsu.edu">jwyrick@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Xu, Jun *</td>
<td>Epigenetic Chromatin Remodeling in Psychiatric Disorders</td>
</tr>
<tr>
<td><a href="mailto:junxu@vetmed.wsu.edu">junxu@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Xun, Luying</td>
<td>Molecular biology and biochemistry of microbial degradation and biotransformation of xenobiotics and environmental pollutants</td>
</tr>
<tr>
<td><a href="mailto:luying_xun@vetmed.wsu.edu">luying_xun@vetmed.wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Ye, Ping</td>
<td>Bioinformatic analysis and mechanistic modeling of biological networks, focusing on infectious diseases and tumorgenesis</td>
</tr>
<tr>
<td><a href="mailto:pye@vetmed.wsu.edu">pye@vetmed.wsu.edu</a></td>
<td></td>
</tr>
</tbody>
</table>

*Associate faculty
#Spokane campus
## Tri-Cities campus
### Vancouver campus
MOLECULAR BIOSCIENCES GRADUATE STUDENT ASSOCIATION

MBGSA would like to welcome you to Pullman and the Washington State University School of Molecular Biosciences (SMB)! The Molecular Biosciences Graduate Student Association (MBGSA) is a student led organization that seeks to unite the graduate students in SMB. MBGSA provides an effective and influential voice for the students’ viewpoint regarding various departmental issues and acts as a liaison between students, faculty, and administration. MBGSA also works closely with the WSU Graduate and Professional Student Association (GPSA), enabling graduate students to have an active voice in matters of WSU policy and campus-wide activities. A major goal for MBGSA is to organize various service activities by and for the graduate students of SMB. At the beginning of Fall Semester, MBGSA helps to facilitate the annual SMB retreat. These retreats are an opportunity to relax, have fun in an informal setting, and to build relationships with students and faculty. MBGSA is also responsible for facilitating various activities for students and faculty throughout the year. Past events included the SMB Halloween Party, fielding a team in the American Cancer Society Relay for Life, family night with bowling at Zeppoz, graduate student night at Rico’s, the annual summer family picnic, and badminton/volleyball at the Student Recreational Center. The MBGSA also invited speakers who participated in professional/career development workshops. Once a month, MBGSA holds a meeting for graduate students (with lunch or snacks) to discuss current issues and events. MBGSA hopes to provide communication, community and support for all incoming students as you adjust to the challenges and demands of graduate school. The following information (Survival Guide) has been compiled by the MBGSA to ease your transition to Pullman and the WSU campus.

Simon Newkirk
simon.newkirk@vetmed.wsu.edu
MBGSA President, 2013-2014

Travis Kent
travis_kent@vetmed.wsu.edu
MBGSA Vice-President, 2013-2014

Jason Watts
jasonwatts@vetmed.wsu.edu
MBGSA Secretary, 2013-2014

Ross Rowsey
rossrowsey@vetmed.wsu.edu
MBGSA Treasurer, 2013-2014
A. THE MBGSA SURVIVAL GUIDE

1. BEFORE YOU GET TO PULLMAN

Questions
If you have questions about anything while you are still out of town, you can contact Kelly McGovern (509) 335-4566 mcgoverk@vetmed.wsu.edu. She coordinates most everything related to graduate students in the School of Molecular Biosciences, and is both knowledgeable and helpful.

Getting Started
The Pullman Chamber of Commerce at (509) 334-3565 or (800) 365-6948 will send you a free relocation packet. It contains information on Pullman, a local map as well as coupons. You can also request the relocation packet from their informative web site, www.pullmanchamber.com/.

Housing
Contact real estate agencies immediately after accepting your offer from WSU. This is very important because houses and apartments rent very quickly here. Houses start becoming available for lease around the middle of March. If you are from out of town it may be helpful to get in touch with your graduate student mentor from the recruitment weekend. The website www.pullman-wa.com/ has links to the local real estate agency pages and http://housing.wsu.edu/ has information on campus apartments for graduate students.

Utilities can be contacted as follows: City of Pullman (water & sewer) (509) 334-3243, Avista Utilities (gas and electric) (800) 227-9187, Frontier (landline phone) (877) 921-8101, Pullman Disposal Service (trash/recycling) (509) 334-1914 and Time Warner Cable (888) 683-1000.

Internet: First Step Internet (208) 882-8869, Comcast (800) 266-2278, Clearwire (866) 877-3066, Frontier (877) 921-8101 and Time Warner Cable (888) 683-1000.

Child Care
If you have children, there is a WSU Child Care Resource and Referral Provider Services number (509) 335-7625. www.wsu.edu/CCRR/. If you call them, they will ask you information about income, what you are looking for, daycare preferences, and so on. They will then compile a list of state certified day care providers, contact numbers and information about schools and send it to you. Washington State Children’s Center (509) 335-8847 (http://childrenscenter.wsu.edu/) provides full and part-time daycare. They fill up fast, but student’s children will get preference on the waiting list. The children’s center also provides evening care at low cost during the school year, which is on a drop-in basis. Pullman school district administrative offices may be contacted at (509) 332-3581.

Insurance for Dependents
WSU offers dependent coverage for graduate students on appointment so that any student could purchase coverage for their family members (spouse, SSDP, and/or children).

Annual rates for 2012-2013
Student Only (Assistantship rate paid by department) $1,981.00 (includes dental)
Additional coverage that can be purchased (dependent rates do not include dental):

To add Spouse/SSD* Partner  $6,138
To add Child(ren) Only       $2,274
Spouse/SSDP* w/ Children    $8,412
*Same sex domestic partner

More details are available from Health and Wellness Services, 509-335-3575 ext. 3, or go to their website http://studentinsurance.wsu.edu/graduate-assistant-plan/eligibility/.

The Benefits Office also suggests if you currently have health insurance coverage for your dependents that you can continue to carry, you might want to consider doing that for a while.

You can also call the Associated Independent Agencies in Pullman at (509) 332-3535 or (800) 672-3535 to inquire about health insurance that will cover your family for either a short time or for a longer period of time.

2. UPON YOUR ARRIVAL IN THE PALOUSE

Establish Residency in the State of Washington

- You must be a Washington resident by the beginning of your second year in graduate school.
- In the first year, you will receive a special waiver to get in-state tuition if your home residence is not the state of Washington.
- The waiver ENDS after your first year.
- If you do not complete all of the requirements, the difference between in-state and out-of-state tuition comes from YOUR pocket!!
- Not applicable to foreign students.

It is very important to save a copy of everything you do your first year. This helps when trying to gain residency. Make sure, as soon as you arrive in Pullman in August, that you obtain a Washington State driver's license and a voter registration card. If you do not drive, obtain a Washington State ID card. Remember to keep photocopies copies of your driver's license and voter registration card. If you lose your driver's license or ID and have it replaced at any point in your first year, be sure to keep the receipt of the replacement and a photocopy of the originals. If you don't take this step, your newer driver's license or ID will have been issued too late to ensure a full year of residency (the Dept. of Licensing does not keep a record of original dates of issuance here in Pullman).

Keep copies of your lease. Remember, you must live in Washington (Moscow, Idaho is not an option). If you have a car, have it registered in Washington State and save a copy of the registration. Transfer your car insurance to a local agent. Copies of canceled rent stubs and old bills and establishing a bank account in Pullman is helpful. If you have any questions about residency, contact the Graduate School, French Ad. 324, (509) 335-3537, or http://www.registrar.wsu.edu/Registrar/Apps/Residency.ASPX.
Places You Will Need to Visit

Department of Licensing
980 S Grand Ave.
Pullman, WA
(509) 334-2499
This is where you obtain your Washington driver's license. Please check the website for current prices and regulations regarding what is required for proof of residency to obtain your license as well as current Washington State driving regulations: [http://www.dol.wa.gov/driverslicense/moving.html](http://www.dol.wa.gov/driverslicense/moving.html). You can register to vote here too. If you do not drive, you should obtain a Washington State ID card, which costs approximately $45.

Vehicle Title and Registration
Pufferbelly Depot
330 N Grand Ave. Suite B
Pullman, WA
(509) 332-5589
This is where you get your vehicle registered and re-titled. It is just off of Grand Avenue, where the old train cars have been turned into offices. The law requires that you register your vehicle within 30 days of moving to Washington, but do it as soon as possible. Washington State requires a $30.00 registration fee to license your vehicle; additional fees may be assessed depending on weight of the vehicle. Information may be found at: [http://www.dol.wa.gov/](http://www.dol.wa.gov/).

Bank
Any bank within Washington will do. Convenient banks to use are the Washington State Employees Credit Union (WSECU) or U.S. Bank, which are conveniently located on the ground floor of CUB (Compton Union Building) room 60 or room 60A, respectively. Keep your bank statements and documents showing when the account was opened for later use in your residency application.

Insurance Company
You need to make sure your car insurance is also based in the State of Washington. There are several insurance agencies in Pullman. Some are part of a larger company (e.g. State Farm), and you may be able to transfer your policy. If not, pick an agent in town and get a new policy started. Also consider renter’s insurance.

Parking Services on Campus
[www.parking.wsu.edu/](http://www.parking.wsu.edu/)
(509) 335-PARK
If you have a car that you will be parking on campus, you should obtain a parking permit as soon as you get to campus (they usually sell out). You can have the cost of the permit taken out of your paycheck in monthly allotments. The cheapest parking lot (Yellow) near the BLS building will cost you ~$260/year plus tax. Parking spaces on campus during the school year are scarce. Before purchasing a parking permit, you should consider using the city bus system operated by Pullman Transit, walking to campus if you are close enough, or parking off-campus. You can find route and schedule information for Pullman Transit at [www.pullmantransit.com](http://www.pullmantransit.com). Your student fees allow you to ride the Pullman Transit. Present your WSU Cougar Card to the driver as you board the bus.
Additional Community Services

WSU Veterinary Hospital
(509) 335-0751 or 335-0752

Free women’s transit service
(509) 335-6830
http://women.wsu.edu/womens-transit/
Call for a ride, this is nice especially if you get out of lab late at night.

WSU Visitor Center
(509) 335-INFO (335-4636)
http://visitor.wsu.edu/
Located in at the Bookie Too! on Stadium Way by Starbucks. You can get sporting event tickets here.

Pullman Chamber of Commerce
415 N. Grand Ave.
(509) 334-3565
www.pullmanchamber.com/

Student Recreation Center
(509) 335-UREC (335-8732)
http://urec.wsu.edu/
The beautiful on-campus fitness facility has reached its 12 year anniversary. This up-to-date facility includes equipment for cardiovascular and strength training, a 1/8-mile indoor track, 25 yard – 5 lane pool, basketball courts, several multipurpose rooms, and hosts many fitness/nutrition classes. As a graduate student, you automatically pay the fees for the Recreation Center, so you might as well use it!

Sports passes are available at Beasley Coliseum, http://beasley.wsu.edu/, on Stadium Way. These passes allow you to attend any sporting event during the semester or year for one flat fee.

Winco Foods, located in Moscow, Idaho, is a great place to buy groceries. They are by far the cheapest place around. Make sure that you have cash, check or debit for payment, because they do not take credit cards.

Moscow Food CO-OP, located in downtown Moscow, Idaho. It is a great place to get organic groceries and is open from 7:30 a.m. to 9:00 p.m. every day.

There are Farmers Market’s in Moscow as well as in Pullman. They generally run from early summer through late fall; in Moscow every Saturday morning from 8:00 a.m. to 12:00 p.m. and in Pullman every Wednesday evening from 4:00 p.m. to 6:00 p.m. A wide variety of crafts, fresh food and farm products are available.
The Whitman County Auditor is located in Colfax, WA, in the Courthouse located on North Main Street (509) 397-6270, www.whitmancounty.org/Auditor/. This is where to go to get copies of voter registration if you need them for residency.

3. ADVICE FOR YOUR FIRST YEAR OF GRADUATE SCHOOL

Graduate Student Insurance
When you enroll for classes, you do not need to sign up for health insurance. If you sign up for it you will have to pay extra. You are automatically given health insurance from the school if you are employed on an assistantship. There is a doctor’s office and pharmacy right on campus in WSU Health and Wellness. They are located in the Washington building on the first floor, http://hws.wsu.edu/. To make an appointment call Health and Wellness Services (509) 335-3575. The pharmacy’s number is (509) 335-5742.

If you are seen by a doctor outside of WSU’s Health and Wellness Services, you will need to file a claim with the insurance company. Your insurance administrator is AIG Educational Markets (formerly Maksin Management). Visit AIG at http://www.studentinsurance.com/Schools/WA/WSU/Gsa.asp. Here you will be able to create an online account, print an ID card, look up preferred providers, submit claims, monitor claim status and view the plan brochure.

Dental benefits are covered by your graduate assistantship insurance through Delta Dental Washington Dental Services. Additional information and an explanation of the coverage may be obtained from the web page: http://www.deltadentalwa.com/. To file a dental claim, obtain an American-Dental-Association-approved claim form from your dentist or from Benefits Services and send it in, along with a copy of your bill. However, if you choose a dentist who is a member of the Delta Dental Washington Dental Service, just inform your dentist of your coverage and he/she will be able to make the claim directly.

Payroll Deduction
There are fees that we have to pay as graduate students, and payroll deduction allows the fees to be deducted a little at a time from each pay period instead of all at once. If you are not supported by the biotechnology or molecular biosciences training grant, it is important that at the beginning of EVERY SEMESTER you go to Payroll Services in French Administration 236, (509) 335-9575, www.wsu.edu/payroll/stntpay/stntpay.htm and sign up for payroll deduction. You must make application for payroll deduction by the second Friday of classes, and the first deduction will be from your September 25th paycheck.

Fees (2013-2014 School Year) that are deducted from your salary each semester are:

Service and activity fee: $601.00
Student recreation fee: 150.00
Health and wellness fee: 144.00
CUB Renovation fee: 120.00
Pullman transit fee: 26.50
Processing fee: 8.00
Total: $1,049.50
Roughly $131.00 per paycheck.

**Direct deposit** is available and can be arranged with payroll services and your bank through the following web site: [http://www.wsu.edu/payroll/stmtpay/directdep/directdep.htm](http://www.wsu.edu/payroll/stmtpay/directdep/directdep.htm).

Your check will automatically be deposited on the 10th and 25th of each month and you will not have to wait for it to come in the mail. Your first paycheck will be issued September 10. You must plan to have sufficient funds to support yourself until you receive your first paycheck.

Direct deposit is also available to graduate students supported by the NIH Biotechnology and Molecular Biosciences training grants. Students in the training programs are only paid once a month, instead of bi-monthly. You can sign up for direct deposit through the Travel Reimbursement Direct Deposit website: [http://www.wsu.edu/travel/directdeposit.htm](http://www.wsu.edu/travel/directdeposit.htm). This is separate from the payroll direct deposit form.

**Meetings, Room Reservations, Equipment Checkout**

For most types of meetings that you have to schedule (i.e. proposal defenses, committee meetings and thesis defense), you have to schedule the room yourself. Kelly McGovern (5-4566) in Biotech/Life Science 102 can help you schedule the Biotechnology/Life Science conference rooms. Students working in labs in other buildings on campus may find it more convenient to schedule rooms in those buildings. If so, they should contact the administrative unit housed in that building: Ableson, School of Biological Sciences; Fulmer, Chemistry; Clark, IBC (Institute of Biological Chemistry).

There are also laptop computers that you can check out from the SMB Administration Office in Biotech/Life Science 202.

**Assemble Your Committee**

Towards the end of your first year you should begin to think about who you want on your thesis committee. A committee consists of four to five SMB core faculty and associate faculty, including your PI. Some labs have very similar committees for all students, but you have the most important voice in who is on your committee.

**Things to think about:**

- Do you get along with this PI?
- Does the PI seem to want to help students?
- Is the PI approachable, responsive and available?
- Ask a fellow student who has this person on his or her committee.
- It’s a good idea to have at least one person who is from the “outside,” i.e., not directly involved in the type of research you will be doing.
QUICK CONTACT INFORMATION

Dr. Mary Hunzicker-Dunn (SMB Associate Director for Graduate Studies)  335-5614  mehd@vetmed.wsu.edu
Kelly McGovern (Academic Coordinator)  335-4566  mcgoverk@vetmed.wsu.edu
Mike Konkel (SMB Ombudsman and Senior Associate Director)  335-4953  konkel@vetmed.wsu.edu

Beasley Coliseum, buying event tickets  335-1514  http://beasley.wsu.edu/
Graduate School  335-1446  http://gradsch.wsu.edu/
Graduate Professional Student Association  335-9545  www.gpsa.wsu.edu/
Health and Wellness Services  335-3575  http://hws.wsu.edu/
Payroll and Benefits  335-9575  www.wsu.edu/payroll/stntpay/stntpay.htm
Pullman Chamber of Commerce  334-3565  www.pullmanchamber.com/
Pullman Regional Hospital  332-2541  www.pullmanhospital.org/
Student Recreation Center  335-UREC  http://urec.wsu.edu/
Veterinary Hospital  335-0751  http://www.vetmed.wsu.edu/depts-vth/appointments.aspx
Women's Transit  335-6830  http://women.wsu.edu/womens-transit/
WSU Child Care Resource and Referral  335-7625  www.wsu.edu/CCRR/
WSU Pharmacy  335-5742  http://hws.wsu.edu/pharmacy/
WSU Visitor's Center  335-4636  http://visitor.wsu.edu/
B. FIRST YEAR GRADUATE STUDENT ORIENTATION GUIDE

1. CHECK IN AND ORIENTATION
The week prior to the beginning of classes is “Orientation Week.” First year students are required to report to the School of Molecular Biosciences (SMB) academic office in Biotechnology/Life Sciences 102 by 2:00 p.m. on the Friday before orientation week. At that time, you will receive your information packet containing the detailed orientation schedule and any other specific instructions to guide you through the meetings of orientation week. Early arrival in Pullman is encouraged because it will allow you time to find a place to live and take care of the myriad of tasks required to settle into a new environment (see Survival Guide prepared by Molecular Biosciences Graduate Student Association (MBGSA)). If you have any questions, please contact Kelly McGovern, the Graduate Academic Coordinator in Biotechnology/Life Sciences 102; mcgoverk@vetmed.wsu.edu.

During orientation week, all incoming graduate students are expected to attend several meetings and functions with the Associate Director, the Graduate Affairs Committee (GAC) and other SMB and WSU personnel. The primary purpose of these meetings is to welcome new students to WSU, provide important SMB graduate program information and advise students about expectations and responsibilities of a graduate student, including teaching assistant duties. You also need to have your photo taken during the SMB “photo session” scheduled during orientation week. This picture will be used in various SMB displays that let faculty, staff, and students learn who you are. Additional orientation activities will take place in the first weeks of the semester; generally during the MBioS 541 time slot (see section C.5 below).

2. ANNUAL SCHOOL RETREAT
Every year in August, during orientation week, there is an SMB retreat. At a minimum, this is an all-day event in Pullman; some years, the retreat will be a two-day event outside of the Pullman area. When budget conditions permit, students, postdoctoral fellows, research associates, faculty, and SMB associate faculty leave Pullman for a two-day retreat. The retreat begins our academic year by building community spirit, offering recognition of achievements, and stimulating scientific curiosity and collaborations. This is one way we can learn more about each other, develop new interactions, and celebrate both individual and collective accomplishments. The focus of the retreat varies from year-to-year, but will generally include an overview of the scientific accomplishments of the school during a poster session and ample opportunities for scholarly and social networking amongst the members of SMB. Attendance by all members of SMB is essential to meet the goals of the annual retreat; therefore, we aim for 100% participation.

3. INDIVIDUAL STUDENT ACADEMIC ADVISING
The GAC will meet with each student during the orientation week to advise him or her about courses and explain required participation in seminars, including the faculty research mini-seminars (MBioS 541), graduate student seminars, and outside speaker seminars.

The GAC will also assist each student in selecting rotation laboratories. We recommend that you visit with faculty members before classes to facilitate setting up your first rotation. Lab rotation decisions need to have the consent of the faculty member and approval of the Associate Director for Graduate Studies. A directory of graduate training faculty is located on page 5 of this handbook.
In late October and again in early December, the GAC will meet with each first year student to provide guidance in the selection of their remaining laboratory rotations, eventual selection of a thesis laboratory and discuss courses for spring semester and any other pertinent issues.

4. TEACHING ASSISTANT TRAINING AND ASSIGNMENT
If you are supported on a teaching assistantship, there will be a memo in your orientation information packet that indicates the course that you will be teaching and the instructor. Please contact the instructor as soon as you can. During orientation week, you must attend the SMB teaching assistant training session and the TA writing workshop. All first year students must attend these training sessions because all students are required to teach a minimum of two semesters.

If you are assigned to TA in your first semester, you will likely be supported on a TA for the entire year. The person in charge of the TA assignments is the Associate Director of Graduate Studies. If you have any questions or concerns about your TA position, you can contact Dr. Mary Hunzicker-Dunn at mehd@vetmed.wsu.edu or (509) 335-5614, Biotechnology/Life Sciences 233.

5. PERSONNEL ACTION FORM PROCESSING
On Monday of orientation week, there is time scheduled with the staff in the SMB administration office in Biotechnology/Life Sciences 202C to assist you in processing all the necessary paperwork, including the Personnel Action Form (PAF) for getting your stipend, tuition waiver, and health insurance that is part of your assistantship. To complete the PAF paperwork, you must bring proof of citizenship, e.g., driver's license or passport and original social security card (unlaminated). International students should bring their valid passport, I-94, I-20 and social security card. International students who do not have a social security card will have the opportunity to apply for one during orientation week. A Personnel Action Form must be processed prior to the beginning of classes for you to be paid in a timely manner. Students on an assistantship are usually paid the 10th and 25th of each month. Direct deposit of your check is encouraged, and a direct deposit application form is enclosed in your orientation packet.

6. MAILBOX, COUGAR/WSU ID CARD, AND WSU NETWORK ACCESS
As a first year student, you will be assigned a mailbox in Biotechnology/Life Sciences 102. It is important that you check your mailbox on a regular basis as this is how you will receive many important forms and notices.

You must go to the Compton Union Building (CUB), room 60, to get your Cougar Card, the official multi-purpose WSU photo ID card. A Cougar Card is required for access to the Biotechnology/Life Sciences building and laboratories, library privileges, use of the Student Recreation Center, riding Pullman Transit buses, use of CougarCASH, and admission to other university events and activities. To obtain your Cougar Card, you will need your WSU ID number and one piece of photo ID.

All incoming graduate students are required to set up a Network ID and a WSU email account. Many essential SMB communications with students are done through email. Servers such as Hotmail, AOL and Yahoo are not adequate for our purposes, as they can not be used on Exchange server mail-lists and often lose important emails and attachments. You must check your WSU email regularly; not receiving information because you didn’t check your email is not an acceptable excuse! You can set up a Network ID and a WSU account as well as change your mailing address to a local address by
logging onto ZZUSIS through http://www.wsu.edu/. SMB computer support personnel will be available during orientation week to help you set up your WSU email service on the VetMed Server. As soon as you know your physical address and have set up your email address, please let Kelly know (335-4566; mcgoverk@vetmed.wsu.edu; Biotech/Life Sciences 102).

7. SAFETY TRAINING AND RESPONSIBLE CONDUCT IN RESEARCH TRAINING
All new graduate students must attend a Safety and Hazardous Materials handling training session. Washington State statutes require certification of such a training session before teaching a lab or conducting research. In addition, Biosafety Training and Responsible Conduct in Research workshops will be given during orientation week or the first two weeks of the semester. During their first semester, all new graduate students must take the on-line radiation safety training course at http://www.rso.wsu.edu/aptouse/materials.html. Students will receive an e-mail confirmation after passing the exam, which allows them to process the application for obtaining radiation badges if needed. Additional specialized training that may be required for students using experimental animals, etc., for research or teaching purposes will take place as needed.

Washington State University requires mandatory web-based training in the Responsible Conduct of Research for all graduate students and can be accessed at myResearch.wsu.edu. For their assistantship paperwork to be processed, students must complete the training. Students are encouraged to complete this requirement before August 16th of their first year. Students have only a one semester grace period to complete the training after they begin their graduate studies; otherwise, they will not be eligible for an assistantship.

8. ORIENTATION WRAP-UP
The wrap-up session with the Associate Director of Graduate Studies will be held during orientation week. The purpose of this meeting is to answer any questions you may have as well as cover several more important items including academic regulations, academic integrity, your work schedule and vacation time, travel authorization, professionalism, the role of the SMB ombudsman, etc.

9. ESTABLISHING WASHINGTON STATE RESIDENCY
All students supported on assistantships are required to reside in the State of Washington. Further, students who are United States citizens are required to become residents of Washington State prior to the beginning of their second year to be eligible for continued tuition waivers; this does not apply to international students.

The university is very strict, requiring students to be a resident of Washington State to obtain an in-state tuition waiver after the first year. A full year of physical residence in Washington State is required before students can apply for in-state residence status. The twelve-month countdown starts from the time you are issued the last of three items: driver's license, motor vehicle registration, and a voter registration card. If you do not drive, obtain a Washington State ID card and register to vote. Further details about establishing residency are in the MBGSA Survival Guide. For the official change in residency to take effect, students must complete the Washington State University Residence Questionnaire (http://www.registrar.wsu.edu/Registrar/Apps/Residency.ASPX) and submit it to the Graduate School with photocopies of the appropriate documentation. These documents must be submitted before the beginning of the fall semester of your second year. For more information, contact the Graduate School, French Administration Building 324, 335-3537.
10. INTERNATIONAL STUDENT INFORMATION

Students with an F-1 visa who are supported by an assistantship must apply for a social security number (SSN) to receive their stipend. Documents required for a SSN application are: 1) valid passport; 2) I-94 arrival/departure record; 3) F-1 visa stamp; 4) current WSU I-20; 5) photocopy of these documents; 6) completed SSN application form; 7) letter verifying an offer of assistantship on SMB letterhead, addressed to Social Security Administration; and 8) letter from the Office of International Student and Scholar (OISS) verifying your employment eligibility. Once all documents are ready, you can submit your application to a Social Security Administration representative in person at the Lewiston Social Security Office, 1617 19th Avenue, Lewiston, ID 83501, (208) 746-2995. We recommend that international students attend orientation sessions that include explanations about immigration regulations, social security number application, etc. offered by the OISS for new incoming students. For more information, visit online http://ip.wsu.edu/students/index.html.

Before serving as a TA, all international students must take the International Teaching Assistant (ITA) evaluation administered by the Intensive American Language Center (IALC). Detailed information is available at www.ialc.wsu.edu/. It is the Graduate School’s requirement, on behalf of the State of Washington, that the English proficiency of all international TA’s, for whom English is a second language, must be evaluated. A faculty representative (usually the Associate Director of Graduate Studies or a member of the GAC) will help you prepare for the exam. This faculty member will accompany you to your ITA evaluation and will be a part of the Evaluation Committee, which also includes two other members from the IALC. The SMB graduate academic coordinator will help you register for and schedule your exam in coordination with your faculty representative.

For your exam, you should prepare a 10-minute mini-lecture on a topic from your field of study at a 100 (freshmen) level, e.g., a topic in basic biology or chemistry, using layman’s terminology and good visual aids. You should prepare a PowerPoint presentation, but print your slides on transparencies; in the examination room, there will be an overhead projector, but not a computer projector. During the ITA evaluation, the lecture is usually videotaped. The total evaluation time is about 15 minutes, which includes questions asked at any time during your lecture. Usually the lecture is stopped before 15 minutes. You are evaluated on: 1) overall language comprehensibility; 2) cultural ability; 3) communication skills; and 4) interaction with students. After the lecture, you will be asked to leave the room while evaluators discuss your presentation with your faculty representative and give you a rating from 1 to 5. All SMB students must be approved at level 1 (Approved for teaching all levels of classes) or level 2 (Approved for teaching upper level classes only (300 or higher level) to be able to teach. You will be told the result within 5 minutes, and the result will be sent to the Graduate School and to SMB. You may also be given recommendations on courses to take to address your weaknesses. If your rating is below a 1 or 2, you are allowed to re-take the examination the following semester after evidence of improvement in your English.
C. THESIS AND DISSERTATION GRADUATE PROGRAMS

This section provides specific details about expectations, requirements, and the sequence of events for successful completion of a thesis M.S. or a Ph.D. degree in the School of Molecular Biosciences.

1. LABORATORY ROTATIONS
First year students are required to do at least three eight-week laboratory rotations in their first year. Students may complete an optional six-week laboratory rotation in the summer preceding their first semester. During individual advising meetings with the GAC, students will be advised regarding laboratory rotations. Students are responsible for contacting the faculty with whom they are interested in rotating in order to make the appropriate arrangements. A maximum of two rotating students is permitted per lab per rotation period. The Associate Director of Graduate Studies will oversee distribution of rotating students to the various research laboratories.

A laboratory rotation should be initiated during the first week of classes. The expectations of the faculty member and the student about the rotation should be made clear at the outset, particularly as to amount of time and effort to be expended. Reasonable minimal expectations for a rotation student are: 1) to attend lab meetings, unless teaching obligations do not permit; and 2) spend an average of 15-20 hours/week doing research in the lab, as teaching and exam schedules permit. However, expectations and involvement can range up to completion of a defined, relatively independent project. Faculty should make an effort to provide each rotation student with a valuable experience from the student’s perspective. Faculty are encouraged to have their rotation students give a short presentation in the lab’s group meeting at the end of the rotation. Faculty recognize that course work grades are important, and some leniency regarding time in the lab is encouraged at exam time. Furthermore, faculty should remember that students on TA’s often have exams to grade in the classes they teach.

At the end of each rotation, the student and faculty member must both complete the rotation evaluation form and discuss the student’s performance. PDF fill-able rotation evaluation forms are available on the SMB share-point server. These evaluations will be used during the annual review of each first year student.

The purpose of laboratory rotations is for the student to be able to make an informed decision about the laboratory in which he/she wishes to do thesis work. This decision must be made by the end of the first year for both M.S. and Ph.D. students.

2. COURSEWORK AND RESEARCH
In both the M.S. and Ph.D. programs, each student’s graduate study is guided by faculty members. While doing rotations, the faculty on the Graduate Affairs Committee will provide that guidance. The student’s thesis/dissertation committee provides this guidance thereafter. Together, the faculty and the student design an appropriate academic program, comprising both course work and research, within the framework of the Graduate School’s requirements for academic residency, examinations, and the thesis/dissertation. A student is recommended for the M.S. or Ph.D. degree when his/her committee members agree that the appropriate level of achievement has been reached in the research area under study, the student has completed sufficient graded coursework with a 3.0 GPA in core courses, and when the Graduate School regulations regarding residence and thesis/dissertation
preparation have been satisfied. It is university policy that thesis M.S. degrees require 21 graded credit hours and the departmental policy that the Ph.D. degree requires a minimum of 21 graded credit hours.

It is of primary importance for each student to demonstrate early potential and commitment to both research and academic achievement. Without research accomplishments, an advanced research degree in SMB cannot be obtained regardless of excellent grades. Likewise, a student cannot remain in good standing in SMB without a 3.0 GPA in core, didactic coursework. Through experience, students have learned that studying together in small groups on a regular basis with other students in the course is an effective way to succeed in graduate-level courses.

3. GRADUATE ASSISTANTSHIPS
Graduate students are appointed on 0.5 FTE (full-time equivalent) academic-year graduate assistantships. This appointment usually includes payment of tuition, a 12-month stipend, and comprehensive health insurance coverage. Students who make satisfactory progress toward their degree will be provided with continual support as either a TA or RA for a period up to 3 or 5 years for M.S. and Ph.D. students, respectively. For technical, administrative reasons, students are appointed to half-time assistantships; however, graduate education is a full-time career, and students are expected to fulfill all responsibilities required for a timely completion of their M.S. or Ph.D. degree, including taking courses, meeting teaching requirements, and conducting thesis research.

4. TEACHING REQUIREMENT
Teaching is considered an integral part of the graduate experience in the School of Molecular Biosciences. As a part of graduate training, students will be required to teach a minimum of two semesters, while concurrently doing more than 20 hrs/week of research. The responsibilities associated with a TA should not take more than 20 hrs/week, including class contact hours as well as time for preparation and cleaning up labs, writing and grading quizzes and exams, grading notebooks, etc. Assignments are made by the Associate Director of Graduate Studies for teaching sections of undergraduate biochemistry, genetics, microbiology or general biology and chemistry courses. Students are required to attend TA training sessions which are provided in the beginning of the fall semester.

5. SEMINARS AND FACULTY RESEARCH SEMINARS
All graduate students are required to attend two weekly noon seminars: a Tuesday seminar for graduate student presentations and a Thursday seminar for invited speakers who are experts in their fields. The student seminar is a non-graded course (MBioS 579, pass/fail; guidelines in Section E). Faculty members and students are strongly encouraged to fill out an evaluation form for each student presentation. This evaluation is used to take attendance as well as provide valuable, constructive criticism to the graduate student presenter. Students in the M.S. program are required to present one seminar on a literature topic. Students in the Ph.D. program are required to present three seminars. The first seminar is generally on a literature topic; the second seminar will be part of the student’s preliminary examination and will describe their research. The third seminar can be on either their research or a literature topic, although students are encouraged to talk about their research. After the outside speaker seminars on Thursday, there is usually lunch hosted by the graduate students in the host laboratory. These lunches provide an opportunity for students to meet well-respected scientists and make contacts regarding their current research as well as later postdoctoral opportunities.
First year graduate students are required to enroll in MBioS 541, a non-graded (pass/fail) faculty mini-seminar course. Participating faculty member will present a 20-minute overview of research programs in his/her laboratory. The purpose of this seminar is to familiarize students with faculty research so that they can make informed choices about rotations and selections of mentors and thesis committee members.

Public seminars will be required as part of the final examination for M.S. and Ph.D. degrees. These final public seminars do not count toward fulfillment of the MBioS 579 requirements.

6. SELECTION OF THESIS/DISSERTATION ADVISOR

For assignment to a laboratory for thesis research after their third rotation, students should submit a preference list of at least two faculty members with whom they have discussed the possibility of thesis work. The Associate Director for Graduate Studies and the SMB Director will review the preference lists and make final assignments to thesis labs. Whenever possible, students will be assigned to their first choice. However, in some cases, limited space or research funds may make a different choice more appropriate. If for any reason the student or faculty member wishes to subsequently alter this assignment, this process may be initiated by submitting a written request to the Associate Director for Graduate Studies.

An SMB Graduate Student Trainer can be a member of the SMB tenure-track or tenured faculty or an SMB associate faculty. A list of SMB graduate trainers is included in this handbook and the most current version is available from Kelly McGovern in Biotechnology/Life Sciences 102.

Responsibilities of an SMB graduate student trainer include:
- Having an active, funded research program and making contributions to the peer-reviewed literature.
- Providing funding for a student’s thesis research, including supplies, reagents and equipment.
- Accepting Ph.D. students into his/her laboratory only with the good faith intention of providing continued RA funding as long as the student is making satisfactory progress toward his/her degree. In the event the trainer encounters unexpected, interrupted funding, he/she should notify the Associate Director of Graduate Studies in a timely manner. The school will provide advanced students with TA funding so that the student’s progress toward a degree is uninterrupted. Most M.S. students will be supported on TA funding.
- Providing summer support for both M.S. and Ph.D. students at the financial support level specified by the policies of SMB.

Mentoring activities strongly recommended for an SMB graduate student trainer include:
- Interacting with each student on a regular basis to supervise the student’s thesis research and actively guiding each student through the SMB program and the Graduate School requirements in a timely manner. This guidance includes making sure that his/her student has regular thesis committee meetings, particularly before the faculty annual review of graduate students in May.
- Participating in graduate student recruiting activities and the annual review of graduate students. The trainer is also encouraged to attend SMB student seminars, especially when their student is presenting, as well as outside speaker seminars and participate in other SMB activities that promote the education of SMB graduate students, such as the annual retreat.
Furthermore, the SMB trainer will strongly encourage their SMB students to participate in all SMB activities, such as seminars, graduate student recruiting, MBGSA activities, the annual retreat and other scholarly and social activities sponsored by the school.

7. SELECTION OF THESIS/DISSERTATION COMMITTEE
By the end of their second semester of the first year, students should choose their thesis/dissertation committee members. The selection of a student’s committee should be determined jointly by the student and his/her advisor. Final approval of the committee’s membership is at the discretion of the Associate Director, who must sign the necessary Graduate School forms on behalf of SMB.

The committee should consist of at least four faculty members for both the M.S. and Ph.D. students; students are encouraged to choose a fifth member. The committee must be chaired by a School of Molecular Biosciences tenure-track (core) faculty member or an SMB associate faculty member. At least two members of the committee must be SMB core faculty members. Clinical assistant/associate professors can be members of thesis and dissertation committees. However, if a committee has only four members, only one member can be a non-tenure track or adjunct faculty member. In unusual situations, a research assistant professor or other senior scientist from the PI’s lab may serve as a fifth member of a committee, generally in an unofficial, non-voting capacity.

8. EXPECTATIONS FOR COMMITTEE MEETINGS
The student’s thesis committee should meet, at a minimum, annually. This meeting is usually during spring semester, including in the first year, to review and assist the research progress of the student. This review should be done prior to the faculty’s annual review of graduate students each spring.

Before each meeting (excluding proposal defenses), the student should prepare a research progress report, along the lines of an annual NIH report, with a two page limit. The report must detail what they proposed to accomplish, what they have accomplished and their future directions and goals. A bulleted, outline format is acceptable. For annual spring committee meetings, this progress report is typically part of the annual review form.

After each meeting, the chair, in consultation with the committee, will briefly document the results of the meeting, using the context of the student’s progress report. Ideally, the committee documentation should be done at the meeting or immediately afterward. The final version of this document will be provided to the student and each committee member. Copies of the student’s progress report and the committee post-meeting assessment will be given to the Graduate Academic Coordinator for inclusion in the student’s file. Again, for annual spring committee meetings, these documents are generally part of the annual review form.

The forms are included in this handbook, and PDF fill-able forms are on the SMB share-point server.

9. SUBMISSION OF PROGRAM OF STUDY
Students should submit their Program of Study in their third semester on forms provided by the Graduate School (online at http://gradschool.wsu.edu/Forms/). The completed Program of Study should be signed by the thesis committee members at the first proposal defense. After approval from the Associate Director of Graduate Studies, the Program of Study should be submitted to the Graduate School for final approval, which can take as long as eight weeks. For M.S. students, the
Program of Study must be approved by the Graduate School no later than the beginning of the semester proceeding the semester of graduation. For Ph.D. students, the Program of Study must be approved by the Graduate School before their Preliminary Examination can be scheduled (the Second Proposal defense). The requirements for graduation are those in effect at the time that the Program of Study is approved. Any subsequent changes in the Program of Study must be approved by the members of the thesis committee, the Associate Director of Graduate Studies and the Graduate School.

Graduate School course requirements for a Thesis Master’s Degree
- 30 hours minimum of total credit
- 21 hours minimum of graded course work
- 15 hours minimum of graded course work at the 500-level
- 4 hours minimum of 700-level credit in major; two of which must be taken during the semester of the completion of the thesis and final examination.
- 6 hours maximum of non-graduate 300 and 400-level graded course work

Graduate School Course Requirements for a Doctoral Degree
- 72 hours minimum total credit
- 21 hours minimum graded course work
- 46 hours minimum 800-level research credits; two of which must be taken during the semester of the completion of the dissertation and the final examination.
- 9 hours maximum of non-graduate courses, 300 and 400-level; these courses can not be part of the required 21 hours of graded credit.
- Audited and satisfactory/pass/fail courses are not recorded on the program of study.

10. RESEARCH PROPOSALS AND PRELIMINARY EXAMINATION
The objective of the first research proposal is to provide a process that: 1) enables the student to become familiar with the literature and major issues of her/his research area; 2) encourages the student to think creatively about experimental design and methodological approaches to his/her research; 3) introduces the student to the art of proposal writing; and 4) provides an opportunity for interaction with the thesis committee and other faculty so they can learn about the student's strengths and provide advice about their weaknesses. Both M.S. and Ph.D. students must do First Proposal.

The second research proposal is required for Ph.D. students and is on a topic that is a continuation of the student’s dissertation project. The objective of the Second Proposal is to provide a mechanism that: 1) tests the student’s ability to design and conduct experiments and collect preliminary data; 2) develop “second generation” hypothesis and experiments; 3) design a longer range project; and 4) provides an opportunity to hone skills in the art of proposal writing. This proposal and its defense is also the preliminary examination, an official Washington State University examination for advancement to Ph.D. candidacy. The official forms to schedule this exam must be submitted to the Graduate School at least 10 working days before your examination.

Students should follow the guidelines in Section F for the First and Second Proposals.

11. ANNUAL REVIEW OF GRADUATE STUDENTS
Students should meet with their thesis/dissertation committee at least once a year, and this annual
meeting should be held during the spring semester. All graduate students are required to complete the Graduate Student Annual Review form; additional information is provided in Section G. Shortly after the end of the spring semester, there is an annual faculty meeting to review the performance of graduate students; each graduate student will be evaluated by the SMB faculty and faculty associates in attendance. This annual evaluation is intended to provide constructive advice to students and enhance the training experience. The following recommendations will be made: **satisfactory performance**, recommending continued enrollment; **satisfactory performance with deficiencies**, specifying conditions to be met for continued enrollment; and **unsatisfactory performance**, recommending dismissal from the program.

12. THESIS/DISSertation REQUIREMENT
The expectations for a M.S. thesis are the completion of a body of research equivalent to one first author manuscript. The expectations for a Ph.D. dissertation are two first author manuscripts. Ideally, the manuscripts should be submitted for publication in a peer-reviewed journal prior to the final thesis or dissertation defense.

The thesis/dissertation should consist of an abstract, an introductory chapter, research chapters and a final discussion chapter. The introduction should present a review of the state of knowledge in the relevant fields of study and outline how the research contained in the thesis advances the field. The research chapters can be presented as manuscripts, using the format of the journal to which the manuscript has been or will be submitted. The final discussion chapter should integrate the conclusions of the research chapters and suggest future directions for the work.

Information on thesis and dissertation formats can be found at the Graduate School website, [http://gradschool.wsu.edu/Forms/](http://gradschool.wsu.edu/Forms/). A copy of the thesis/dissertation must be submitted to the members of the thesis committee, the Graduate School, the SMB Academic Office in Biotechnology/Life Sciences 102 at least 10 working days before the final examination. In addition, Ph.D. candidates must upload an electronic format (PDF) copy of their dissertation to UMI/Proquest 10 working days before their final examination.

13. FINAL EXAMINATION
After approval of the thesis or dissertation by the student’s committee, students must schedule the final examination with their committee members and give notification (through a scheduling form) to the Graduate School at least 10 working days before the final examination. Public seminars are required as part of the final thesis/dissertation defense. After the public seminar, there is an examination by the student’s committee and any interested faculty members; this session should be scheduled for two hours in duration, and is limited to two and one-half hours. All faculty members can attend, but only members of the thesis/dissertation committee and graduate student training faculty officially approved by the Graduate School can vote by secret ballot, seen only by the Graduate School liaison. If any student or faculty wishes to have a Graduate Mentor Fellow from the Graduate Mentor Academy present during the final examination, they may ask for one through the Graduate School. A brief rationale for the request is usually required. In the event the student does not pass the final examination, he or she may be allowed to re-take the final examination after a lapse of three months. A Graduate Mentor Fellow from the Graduate Mentor Academy will automatically be appointed to attend the repeated final examination.
After successful completion of the final examination, thesis for M.S. students must be submitted within five working days in electronic format (PDF) to grad.programs@wsu.edu. Ph.D. students must upload their final dissertation to UMI/Proquest within five working days of the examination. In addition, the candidates must submit one paper copy of the title page, abstract, and original signature page—on 100% cotton paper to the Graduate School. Signatures must be in black ink. Students should also provide copies of the final thesis or dissertation to the School of Molecular Biosciences and the chair of his/her committee.

14. CHANGE FROM M.S. TO PH.D. PROGRAM
A student wishing to change from a M.S. program to a Ph.D. program must receive approval from the Graduate Affairs Committee, which will make a recommendation to the Graduate School to alter the student’s status.

Before the end of the first year, the student should discuss this change in status with the Associate Director of Graduate Studies and then submit a written request that includes a transcript of work completed at WSU and a reason for the request to change programs. The student is required to be in good standing with at least a 3.0 GPA to be considered. The Associate Director will bring this information to the Graduate Affairs Committee for its consideration.

After the first year, the student must obtain a recommendation from his/her thesis committee for a change in status. The chair of the thesis committee should send a memo to the Associate Director of Graduate Studies requesting this change, with appropriate rationale. The student should then bring a copy of their transcript to the Associate Director and discuss this change. The Associate Director will provide this information to the Graduate Affairs Committee for its consideration.
15. TYPICAL TIMELINE OF THESIS M.S. GRADUATE PROGRAM

FIRST YEAR

A. FIRST SEMESTER

- **Course enrollment (total 12 credit hrs)**

<table>
<thead>
<tr>
<th>Course</th>
<th>MBioS 504</th>
<th>3 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Biochemistry</td>
<td>MBioS 513</td>
<td>3 credits</td>
</tr>
<tr>
<td>Molecular Biology I</td>
<td>MBioS 503</td>
<td>3 credits</td>
</tr>
<tr>
<td>Skills in Critical Assessment of</td>
<td>MBioS 507</td>
<td>2 credits</td>
</tr>
<tr>
<td>Molecular Biosciences Literature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mini-Seminar</td>
<td>MBioS 541 (S/F)</td>
<td>1 credit</td>
</tr>
<tr>
<td>Master’s Research</td>
<td>MBioS 700 (S/U)</td>
<td>3 credits</td>
</tr>
</tbody>
</table>

- **Seminars**: Attend mini-seminars (MBioS 541; Wednesdays at noon).

- **Two 8-week lab rotations**: Complete rotation evaluation form for each.

- **Teaching requirement** if applicable

B. SECOND SEMESTER

- **Course enrollment (total 12 credit hrs)**

<table>
<thead>
<tr>
<th>Course</th>
<th>MBioS 504</th>
<th>3 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Biology II</td>
<td>MBioS 514 (Biochem)</td>
<td>3 credits</td>
</tr>
<tr>
<td>Discipline specific course</td>
<td>MBioS 501 (GenCB)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MBioS 550 (Micro)</td>
<td></td>
</tr>
<tr>
<td>Seminar</td>
<td>MBioS 579 (S/F)</td>
<td>2 credits</td>
</tr>
<tr>
<td>Master’s Research</td>
<td>MBioS 700 (S/U)</td>
<td>4 credits</td>
</tr>
</tbody>
</table>

- **Seminars**: Attend student seminars and invited speaker seminars. Present a literature seminar (MBioS 579).

- **Third 8-week lab rotation**: Complete rotation evaluation form.

- **Selection of thesis advisor**: Submit a preference list of two potential thesis advisors by the end of the third rotation.

- **Begin thesis research** to obtain preliminary data for the first research proposal.

- **Teaching requirement** if applicable

- **Choose thesis committee members** – at least three faculty members in addition to the thesis advisor. Two members must be core SMB faculty.

- **Hold a thesis committee meeting** before the end of the semester.

- **Complete and submit the annual evaluation form.**

C. SUMMER

- **Research** The summer is the first opportunity for most students to carry out research that will count towards her/his degree without the interruptions of classes or teaching. Students are encouraged to make the most of this time to collect preliminary data as well as plan and write their first research proposal.
**First research proposal (MBioS 593)**
Follow the SMB Guidelines for Proposals and Guidelines for Proposal I in Section F.

**Timeline**
- **June 1:** Discuss the possible projects and goals for a proposal with your thesis advisor.
- **July 15:** A preliminary draft to your thesis advisor, begin contacting your committee members to schedule a proposal defense meeting.
- **July 31:** A revised draft to your thesis advisor for further comment
- **September 3:** Final written proposal due; provide copies to thesis committee members and the SMB Academic Office.
- **October 31:** Oral defense must be completed.

**Prepare the "Program of Study"** (form available on the Graduate School website). Have this document ready for approval and signing by your committee at the First Proposal defense.

**SECOND YEAR**

**A. THIRD SEMESTER**

**Course enrollment (Total of 12 credit hrs)**

<table>
<thead>
<tr>
<th>Course enrollment</th>
<th>MBioS 593 (S/F)</th>
<th>2 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Proposal</td>
<td>MBioS 508</td>
<td>2 credits</td>
</tr>
<tr>
<td>Quantitative Approaches in Molecular Biosciences</td>
<td>MBioS 508</td>
<td>2 credits</td>
</tr>
<tr>
<td>One or two electives</td>
<td>Must have a minimum 21 graded credits for M.S. degree</td>
<td>2-6 credits</td>
</tr>
<tr>
<td>Master’s Research</td>
<td>MBioS 700 (S/U)</td>
<td>To total of 12 credits</td>
</tr>
</tbody>
</table>

**Seminars:** Attend student seminars and invited speaker seminars.

**Oral defense of the first research proposal (MBioS 593), completed by October 31st.**

**Have the "Program of Study" signed** by the thesis committee members at the First Proposal defense. Deliver signed document to Graduate Program coordinator for approval and signing by the Associate Director of Graduate Studies. The Program of Study will then be filed with the Graduate School for final approval.

**Teaching,** if applicable

**B. FOURTH SEMESTER AND SUBSEQUENT SEMESTERS**

**Course enrollment (Total of 12 credit hrs)**

<table>
<thead>
<tr>
<th>Course enrollment</th>
<th>MBioS 700 (S/U)</th>
<th>To total of 12 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or two electives</td>
<td>Must have a minimum 21 graded credits for M.S. degree</td>
<td>2-6 credits</td>
</tr>
<tr>
<td>Master’s Research</td>
<td>MBioS 700 (S/U)</td>
<td>To total of 12 credits</td>
</tr>
</tbody>
</table>

**Seminars:** Attend student seminars and invited speaker seminars.

**Teaching,** if applicable

**Research review by student’s thesis committee in spring semester of each year.**

**Annual review of graduate students at the end of each academic year.**
C. FINAL SEMESTER

- **The beginning of the semester in which you graduate**, apply for graduation through the Graduate School and pay your $50 graduation fee.

- **Schedule the public seminar and thesis examination** with thesis committee members and through the Graduate School using the Dissertation/Thesis Scheduling Form. At least ten working days prior to your thesis defense, submit the signed Dissertation/Thesis Scheduling Form with a final draft of your thesis to the Graduate School.
  - **After the defense**, within 5 working days, submit your digital thesis in an appropriate electronic format (PDF) to the thesis/dissertation website: [http://www.dissertations.wsu.edu/](http://www.dissertations.wsu.edu/) and the appropriate hard copies to the Graduate School. In addition, students should provide copies of the thesis to the School of Molecular Biosciences and to the chair of his/her committee.
16. TYPICAL TIMELINE OF PH. D. GRADUATE PROGRAM

SUMMER PRIOR TO FIRST YEAR: Optional 6-week laboratory rotation

FIRST YEAR

A. FIRST SEMESTER

- **Course enrollment (total 12 credit hrs)**

<table>
<thead>
<tr>
<th>Course</th>
<th>MBioS</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Biochemistry</td>
<td>513</td>
<td>3</td>
</tr>
<tr>
<td>Molecular Biology I</td>
<td>503</td>
<td>3</td>
</tr>
<tr>
<td>Skills in Critical Assessment of Molecular Biosciences Literature</td>
<td>507</td>
<td>2</td>
</tr>
<tr>
<td>Mini-Seminar</td>
<td>541 (S/F)</td>
<td>1</td>
</tr>
<tr>
<td>Doctoral Research</td>
<td>800 (S/U)</td>
<td>3</td>
</tr>
</tbody>
</table>

- **Seminars**: Attend mini-seminars (MBioS 541; Wednesdays at noon). Attend student and invited speaker seminars (Tuesdays and Thursdays, respectively at noon).
- **Two 8-week lab rotations**: complete rotation evaluation form for each.
- **Teaching requirement** if applicable

B. SECOND SEMESTER

- **Course enrollment (total 12 credit hrs)**

<table>
<thead>
<tr>
<th>Course</th>
<th>MBioS</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Biology II</td>
<td>504</td>
<td>3</td>
</tr>
<tr>
<td>Discipline specific course</td>
<td>514 (Biochem)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>501 (GenCB)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>550 (Micro)</td>
<td></td>
</tr>
<tr>
<td>Seminar</td>
<td>579 (S/F)</td>
<td>2</td>
</tr>
<tr>
<td>Doctoral Research</td>
<td>800 (S/U)</td>
<td>4</td>
</tr>
</tbody>
</table>

- **Seminars**: Attend student seminars and invited speaker seminars. Present a literature seminar (MBioS 579).
- **Third 8-week lab rotation**: complete rotation evaluation form.
- **Selection of thesis advisor**: Submit a preference list of two potential thesis advisors by the end of the third rotation.
- **Begin dissertation research** to obtain preliminary data for the first research proposal.
- **Teaching requirement** if applicable
- **Choose dissertation committee members** – at least three faculty members in addition to the research advisor. Two members must be core SMB faculty.
- **Hold a thesis committee meeting** before the end of the semester.
- **Complete and submit the annual evaluation form.**

C. SUMMER

- **Research** The summer is the first opportunity for a student to carry out research that will count towards her/his degree without the interruptions of classes or teaching. Students are encouraged to make the most of this time to collect preliminary data as well as plan and write their first research proposal.
- **Coursework** If possible, enroll in Phil 530 (Bioethics), a required course, offered in an online, blended format.

- **First research proposal (MBioS 593)**
  Follow the SMB Guidelines for Proposals and Guidelines for Proposal I in Section F.
  **Timeline**
  - June 1: Discuss the possible projects and goals for a proposal with your thesis advisor.
  - July 15: A preliminary draft to your thesis advisor, begin contacting your committee members to schedule a proposal defense meeting.
  - July 31: A revised draft to your thesis advisor for further comment.
  - September 3: Final written proposal due; provide copies to thesis committee members and the SMB Academic Office.
  - October 31: Oral defense must be completed.

- **Prepare the "Program of Study"** (form available on the Graduate School website); have this document ready for approval and signing by your committee at the first proposal defense.

**SECOND YEAR**

**A. THIRD SEMESTER**

- **Course enrollment (Total of 12 credit hrs)**

<table>
<thead>
<tr>
<th>Course Enrollment</th>
<th>MBioS 593 (S/F)</th>
<th>2 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Proposal</td>
<td>MBioS 593 (S/F)</td>
<td>2 credits</td>
</tr>
<tr>
<td>Quantitative Approaches in Molecular Biosciences</td>
<td>MBioS 508</td>
<td>2 credits</td>
</tr>
<tr>
<td>Phil 530</td>
<td>Option to take on-campus course</td>
<td>2 credits</td>
</tr>
<tr>
<td>One or two electives</td>
<td>Must have a minimum 21 graded credits for M.S. degree</td>
<td>2-6 credits</td>
</tr>
<tr>
<td>Doctoral Research</td>
<td>MBioS 800 (S/U)</td>
<td>To total of 12 credits</td>
</tr>
</tbody>
</table>

- **Seminars**: Attend student seminars and invited speaker seminars.

- **Oral defense of the first research proposal (MBioS 593), completed by October 31st.**

- **Have the "Program of Study" signed** by the thesis committee members at the first proposal defense. Deliver signed document to Graduate program coordinator for approval and signing by the Associate Director of Graduate Studies. The Program of Study will then be filed with the Graduate School for final approval.

- **Teaching**, if applicable

**B. FOURTH SEMESTER**

- **Course enrollment (Total of 12 credit hrs)**

<table>
<thead>
<tr>
<th>Course Enrollment</th>
<th>Must have a minimum 21 graded credits for Ph.D. degree</th>
<th>2-6 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or two electives</td>
<td>Must have a minimum 21 graded credits for Ph.D. degree</td>
<td>2-6 credits</td>
</tr>
<tr>
<td>Phil 530</td>
<td>Option to take on-line course</td>
<td>2 credits</td>
</tr>
<tr>
<td>Doctoral Research</td>
<td>MBioS 800 (S/U)</td>
<td>To total of 12 credits</td>
</tr>
</tbody>
</table>

- **Seminars**: Attend student and invited speaker seminars
• Teaching, if applicable
• Research review by student’s dissertation committee in spring semester of each year
• Annual review of graduate students at the end of each academic year

THIRD YEAR

A. FIFTH SEMESTER

• Course enrollment (total of 12 credit hrs)

<table>
<thead>
<tr>
<th>Seminar</th>
<th>MBioS 579 (S/F)</th>
<th>2 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctoral Research</td>
<td>MBioS 800 (S/U)</td>
<td>Up to 10 credits</td>
</tr>
</tbody>
</table>

• Seminars Attend student seminars and invited speaker seminars.
  Present second seminar (MBioS 579) on dissertation research.

• Prepare Second Proposal (Preliminary Examination)
  Follow the SMB Guidelines for Proposal and Guidelines for Proposal II in Section F.

Timeline

- April: Enroll in MBioS 579, for 2 credits and 10 credits of MBioS 800 during preregistration.
- Mid-Summer: Contact committee members to schedule your seminar and proposal defense (preliminary exam) meeting. It is your responsibility to verify the date and time of your examination with the Graduate Academic Coordinator to ensure that there are no overlapping of preliminary examinations within SMB. The last day to defend is 22 Nov. 2013.

- October 1: Target date for final version of the proposal. The absolute deadline for submission of the final proposal and cover page to the SMB Academic Office in Biotech/Life Science 102 and to the committee members is 10 working days before the exam.
- 10 working days before exam: Submit your official Preliminary Examination Form to the Graduate School 10 working days before the exam (the official scheduling form is available on the Graduate School website).

B. SIXTH SEMESTER

• Stipend level increased to RAII or TAI level if student has passed "Preliminary Examination."

• All graded course work should be completed. Student should be eligible for an ABD (all-but-dissertation) tuition waiver if supported by an RA from an external grant. Work with Graduate Academic Coordinator to file the appropriate paperwork with the Graduate School.

• Course enrollment (total of 12 credit hrs)

| Doctoral Research | MBioS 800 (S/U) | To total of 12 credits |

• Seminars: Attend student seminars and invited speaker seminars

• Research review by the student’s thesis committee

• Annual review of graduate students
FOURTH AND SUBSEQUENT YEARS

- **Course enrollment (total of 12 credit hrs)**

  | Doctoral Research | MBioS 800 (S/U) | Up to 12 credits |

- **Seminars** Attend student seminars and invited speaker seminars.
  Ph.D. students must present one more seminar (MBioS 579).

- **Research review by student’s thesis committee**, at least once each year (usually in the Spring)

- **Annual review of graduate students at the end of each academic year.**

FINAL SEMESTER

- **The beginning of the semester in which you graduate**, apply for graduation through the Graduate School and pay your $50 graduation fee.

- **Schedule the public seminar and dissertation examination** with committee members and through the Graduate School using the Dissertation/Thesis Scheduling Form. At least ten working days prior to your dissertation defense, submit the signed Dissertation/Thesis Scheduling Form to the Graduate School as well as upload your final draft dissertation in a PDF format to UMI/Proquest.

- **After the defense**, within 5 working days submit your digital thesis in an appropriate electronic format (PDF) to the thesis/dissertation website: [http://www.dissertations.wsu.edu/](http://www.dissertations.wsu.edu/) (link will take you to UMI/Proquest) and the appropriate hard copies to the Graduate School. In addition, students should provide copies of the dissertation to the School of Molecular Biosciences and to the chair of his/her committee.
D. REQUIRED AND ELECTIVE COURSES FOR GRADUATE STUDENTS

1. Core Courses (13 graded credits)
   503 (Fall, 3 credits) Molecular Biology I
   504 (Spring, 3 credits) Molecular Biology II
   507 (Fall, 2 credits) Skills in Critical Assessment of Molecular Biosciences Literature
   508 (Fall, even years, 2 credits) Quantitative Approaches in Molecular Biosciences
   513 (Fall, 3 credits) General Biochemistry I
   593 (Fall or Spring, 2 credits, P/F) Research Proposal
   579 (Fall or Spring, 2 credits, P/F) Molecular Biosciences Seminar

2. Discipline Specific Courses (3 or 4 graded credits)
   501/529 (Spring, 3/1 credits) Cell Biology/Selected Topics in Cell Biology – GenCB option
   514 (Spring, 3 credits) General Biochemistry II – Biochemistry option
   550 (Spring, 3 credits) Microbial Physiology – Microbiology option

3. Non-MBioS Required Course (2 graded credits)
   Phil 530 (2 credits) Bioethics; Fall, offered on-campus; Summer & Spring, may be offered on-line

4. Elective Courses (Ph.D. students are required to take two elective courses)
   SMB Fall Offerings
   528 (even years, 3 credits) Molecular and Cellular Reproduction
   540/548 (3/1 credits) Immunology/Selected Topics in Immunology and Virology
   574 (odd years, 3 credits) Protein Biotechnology
   578 (3 credits) Bioinformatics
   Fall Offerings from other departments*
   AS 588 (3 credits) Perspectives in Biotechnology
   Chem 514 (2 credits) Mass Spectrometry
   CropS 554 (3 credits) Chromosome Structure and Function
   MPS 587 (odd years, 3 credits) Advanced Topics in Plant Biochemistry
   Pharm Sci 572 (even years, 3 credits) Fundamentals of Oncology
   Physics 566 (3 credits) Biological Physics
   Stat 412 (3 credits) Statistical Methods in Research I
   V PH 555 (4 credits) General and Cellular Physiology

   SMB Spring Courses
   Discipline specific courses if student is in different discipline: 501/529; 514; 550
   542/548 (3/1 credits) Virology/Selected Topics in Immunology and Virology
   561 (even years, 3 credits) Biochemical Signaling in Plants, Animals and Microorganisms
   Spring Offerings from other departments*
   Biol 537 (3 credits) Plant Cell Biology
   Chem 510 (2 credits) Introduction to Proteomics
   Chem 540 (3 credits) Physical Organic Chemistry
   CropS 504 (3 credits) Plant Transmission Genetics
   PI Path 535 (3 credits) Molecular Genetics of Plant and Pathogen Interactions
   PharmSci 580 (3 credits) Gene and Stem Cell Therapies
PharmSci 581 or Anim Sci 581 (3 credits) Stem Cell Biology, Therapeutics and Regenerative Medicine
Stat 512 (3 credits) Analysis of Variance of Designed Experiments

*Other electives may be included in a student’s Program of Study with the approval of his/her thesis committee and the Associate Director for Graduate Studies

5. Additional Seminar and Advanced Topics courses
MBioS 549 Seminar in Immunology (Spring, 1 credit)
MBioS 568 Advanced Topics in Molecular Biosciences (V 1-3 credits): Faculty members can use this to give a specialized course in some discipline in molecular biosciences.
A S 582 Seminar in Reproductive Biology (Fall and Spring, S/F grading, 1 credit)
E Mic 586 Special Projects in Electron Microscopy (Fall and Spring, V 2-3 credits)
E Mic 587 Special Topics in Electron Microscopy (Fall and Spring, S/F grading, 1 credit)
E. SEMINAR INFORMATION (MBIOS 579) up-dated from original document provided by Dr. Ronald W. Brosemer

1. Content and Purpose
   A. SEMINAR CONTENT AND SCHEDULING
      • Your first seminar will be on a paper from the literature.
      • Ph.D. students will present two more seminars. Your second seminar will be on your research, and your third one on your choice of literature or research.
      • Schedule your seminar with Graduate Academic Coordinator in Biotechnology/Life Sciences 102. Make sure you schedule your seminar when your thesis advisor can be in attendance.
   B. PURPOSE: TRAINING
      • Most information in modern biological science is communicated verbally.
      • Throughout your career you will be continually evaluated; an important aspect of those evaluations are judgments of your seminar presentations.
      • There is a strong link between the ability to give a good seminar and being a good teacher.
   C. PURPOSE: SOURCE OF INFORMATION
      • Listening to a good seminar is the most time-efficient way to stay abreast of new developments in a wide range of fields.
      • There is always a distinct possibility that you will hear about a specific approach, technique or result that will be of direct application to your own work, even if the topic of the seminar is distant from your own interests.

2. General
   A. You are required to attend all SMB seminars throughout your graduate career. Attendance will be taken for all students. Absences will also be noted at the annual review.
   B. As described in the next two sections, all seminar topics must be approved by a cognizant faculty member (advisor, rotation supervisor or course coordinator) at least FOUR WEEKS prior to your seminar.
   C. The allotted time for each seminar is 30 minutes for the talk (although 25 minutes is preferred) and 10 minutes for questions. You will be cut off if you exceed this time.
   D. While enrolled in MBioS 579, you are required to fill out and turn in, with your name included, an evaluation sheet for each student seminar. Use these every time you attend a seminar to help you gauge the strengths and weaknesses of the speaker and to get credit for attending. Think
about the topics discussed and ask questions during the question period following the presentation.

E. After you give a seminar, you will be given copies of both the student and faculty evaluations with the names removed. You will also be provided with the evaluation by the course coordinator. Read them; they are intended to help you improve your performance. You should pick up your evaluations from Kelly McGovern in the Biotechnology/Life Sciences 102, usually within a week of your seminar. You may, if you wish, also meet with the course coordinator to discuss your performance.

3. Getting Started: Literature Seminars

A. Pick Your Paper Early. The following time table is suggested, especially for first-year students. This is often the hardest part. The course coordinator is available for consultation as are your advisor or rotation supervisor and other faculty. But, do not expect them to do your job.

- You should be reading current literature at all times.

- At least four weeks prior to your seminar, select two or three possible papers. If you are associated with a group, talk to the cognizant faculty member (advisor or rotation supervisor). The course coordinator is also available for consultation.

- At least three weeks prior to your seminar make a final choice of paper and outline the talk. Consult with your advisor or rotation supervisor. After providing the title and outline, seek approval from either the course coordinator or (preferably) from your advisor or rotation supervisor. This assures that the major paper was recently published (typically within the past year) and is both interesting and of good quality. Begin practicing.

- Two weeks prior to your seminar, give the title and summary to Kelly McGovern, Biotechnology/Life Sciences 102, for the seminar announcement. Announcements are posted for the public at least 10 working days in advance of your seminar. You may submit the information by email to her at mcgoverk@wsu.edu.

B. Pick a Good Paper Aimed at a General Molecular Biosciences Audience. It is easier to give a good talk about good work. The preferable papers are those with a direct story. While there is sometimes good work in obscure journals, it is best to pick from mainline journals such as: Nature, Science, Biochemistry, Journal of Bacteriology, Journal of Biological Chemistry, Molecular Microbiology, PNAS, and Cell. With rare exceptions, you should start with the assumption that the paper is good and the conclusions sound.

C. Read the Related Literature. Do not expect to be able to have to read only your paper. You will have to read background material, but only present one (or perhaps two) paper(s). You should be the "local expert" for one day on this subject. You may include some related references on your seminar announcement.

D. Outline Your Talk. You need to decide what to cover and what extra material you will need to include. Decide which tables and figures to present. Not all data given in the paper may be relevant.
4. Getting Started: Research Seminars

A. DECIDE WHAT YOU WANT TO PRESENT. Your research may be well underway or it may be hardly underway. You should not be too concerned with this, but make sure you are selective about which data you present. We do not need to hear about all of your failed experiments. Discuss with your advisor a broad outline of your proposed seminar.

• At least THREE WEEKS prior to your seminar make an outline of your talk. Consult with your advisor and obtain approval for the seminar topic. Begin practicing.

• TWO WEEKS prior to your seminar, give the title and summary to Kelly McGovern, Biotechnology/Life Sciences 102, for the seminar announcement. Announcements are posted for the public at least 10 working days in advance of your seminar. You may submit the information by email to her at mcgoverk@wsu.edu.

B. REMEMBER THAT NOT EVERYONE IS FAMILIAR WITH THE BACKGROUND OF YOUR RESEARCH. If you do not explain its purpose by giving sufficient background in a broader context, then it is hard to get excited about your research. But, on the other hand, do not allow the introduction to drag on for most of the talk.

C. MAKE SURE YOU GRASP THE LITERATURE RELEVANT TO YOUR RESEARCH.

D. OUTLINE YOUR TALK. You need to decide what to cover and what extra material you will need to include. Decide which tables and figures to present. Not all data obtained during your research will be relevant.

5. Organization of Your Seminar

A. LOGIC. The basic secret of good organization is to elucidate the logic of the paper. If there is no apparent logic, the topic is a poor choice.

B. SEMINAR STRUCTURE. Your talk should generally have the following sections (you may change the order to fit your style):

• Title page - Include the title and full journal reference for the paper as well as your name. If it is a research seminar, include the name of the head of the research group.

• Introduction – Include biological motivation and relevance. i.e., why should people listen to this talk? Put the work in context of a wider scope of the field. Also, give background information necessary to understand the paper. This section often requires considerable reading beyond the paper. Remember you are addressing a general audience, not a group of your lab mates.

• Hypothesis and Conclusion - The purpose of the early slides is to give direction to your talk. Describe briefly what the problem is, why it is significant, and how you or the authors go about solving it. You will include the hypothesis or aim of the study in one of the early (perhaps the second) slides. In addition, it is generally best for both speaker and listeners to have an early
(perhaps the third) slide show a summary of the conclusions. This focuses attention of the audience in the direction your presentation will take and allows them to more readily evaluate the experimental basis for the conclusions that you have already shown and will show again at the end. There are times when you may wish to pull a surprise at the end of a talk, but these cases are so rare that it is best to get in the habit of an early summary of conclusions.

NOTE: The next two items may be combined, but the most important point is to explain how the authors got from the original logic to the conclusion.

- Methods - Describe experimental methods. If you do not understand them, read the literature and talk to faculty or students.

- Results – Be selective. Present what is relevant to the original aim. You generally should not show every detail in a paper or in your research.

- Future directions and/or critique (optional, but include it anyway) - If you find that the work is not as definitive as you would prefer, you may suggest further experiments that could be done. Also, if you find some problems with what was done, you should note them. If there are too many problems or loose ends, choose a better paper.

- Summary – You should be able to say how the results support the conclusion; i.e., summarize:
  - logic
  - the path from problem to conclusion
  - significance

- It should be obvious by this point in the seminar that your presentation is finished. Include one or two concluding oral sentences to bring the audience back down to earth. i.e., you should not end with: "That is all I have to say. Any questions?" Be snappier than that.

C. GENERAL STYLE

- Emphasize important points by showing them in slides and/or repeating them in mini-summaries.

- Make sure that even people far from the field come away feeling they have learned something new. This means pick a good paper, but also make sure that the main message comes across.

- Continually explain what is being done and why; redundancy is not always bad.

- The logic of a study and the implications of the results are more important than a list of all the data. It is an art to present enough critical data in an appropriate form to convince the audience that the experiments are well done and the data convincing without boring them.
D. **Presentation Level.** Present your seminar so that new inexperienced SMB graduate students can understand it. Remember that these people have different backgrounds than yours; avoid jargon or excessive acronyms.

6. Presentation

A. **Design a clear PowerPoint presentation.**

- Text should be readable from the back of a small auditorium. Perhaps the cardinal sin in slides and overheads is use of fonts that are too small. For medium-sized lecture halls, use at least 24 font. This restricts the amount of material that can be shown in one slide, but that is an advantage. Use only fonts without serifs; they are clearer in slides. It is recommended that you never make the all-too-common statement: "I know you can't read what is on this slide, but I am showing it anyway" (unless, of course, you really do not want the position for which you are applying). If, despite this counsel, you still choose to show such a slide (e.g., nucleic acid or protein sequences), use color to highlight the point you wish to make.

- Do not put too much on one page; usually one thought per page is ideal.

- Do not use too much text. Key phrases are best. This is one place where complete sentences are likely not warranted.

- Enlarge figures. Coloring lines on complicated figures sometimes helps. Add a title if the legend in the paper is too long. If you scan figures from papers, retype the relevant information in the legend so that it is large enough to be legible. There is no gain in including the legend if it cannot be read – just one more distraction. When you retype the legend, you will often have to shorten the text, which will likely improve the presentation.

- Redo tables if they contain too much data and/or are difficult to understand. Consider preparing a separate table by combining data from several tables. Say what the data imply.

- Use color to emphasize. Be aware of color compatibilities. Colors can spruce up a presentation, but many color schemes commonly used are a distraction rather than an aid. Be sure to check the compatibility of your colors before you make your presentation. Appearance on a computer screen is not a sufficiently reliable method. If it looks bad on a computer screen, it will look bad on a projection screen. If it looks good on a computer screen, try it on a projection screen and view it from the back of the room before adopting that scheme. Just because something can be done does not mean it should be done. Surprisingly, red is usually not vivid enough to show up well under projection; avoid red.

- Explain any term or technique that might not be understandable to a fair portion of a general molecular biosciences audience. This is especially important for acronyms; I suspect that DNA, RNA and ATP may be the only acronyms needing no expansion. Explanations need not necessarily be detailed; e.g., just saying what the letters in an acronym stand for often is sufficient information. Recall how much supplemental information you needed at the last seminar you attended on a subject you were not acquainted with. The balance between
providing too much trivial information and talking over the head of many in the audience is difficult to define; this is one of the major tasks confronting a seminar speaker.

• Do not waste time during the seminar reciting word-by-word what is shown on slides; assume the listeners are literate. You should show only an outline of points on the slides and use your vocal talents to fill in with additional information. Make the points on slides pithy as well as informative. This is not always easy, but if you really understand the material, you should be able to succeed. Besides, using legible fonts limits what you can fit on any one slide. It is realized that you might well need to read from slides as an aid during your first seminar, but wean yourself away from this crutch.

• Use the laser pointer sparingly. Headaches are common place when trying to follow a red dot that is constantly zigzagging all over the screen. This becomes especially crucial if you are tense; the craziness of laser-light patterns is directly proportional to nervousness. Do not so clearly advertise the fact that you would rather be somewhere else at that moment.

B. PRACTICE, PRACTICE, PRACTICE. Practice your talk as many times as you can, alone and before colleagues and family. If you are giving your first seminar, start about two weeks prior to your scheduled presentation. Become acquainted with difficult pronunciations. If you are in a group, try to give it at a group meeting or ask your fellow students to listen to your talk. Try to practice at least once in the room where you will give your seminar (in front of your fellow students, if possible) to familiarize yourself with the projection equipment, lights and acoustics. It is not easy to get into many of the lecture halls; the most accessible time is usually in the evenings. Practice will also help you keep within the allotted time.

• Be prepared for the unexpected. If something goes wrong, don't panic (at least openly). Stay calm. And for heaven's sake, don't mumble statements about how unfair life has been to you by throwing you this curve. Remember that the audience is not interested in your problems, but in how you will get back on track so that the seminar can continue and they can get home to dinner.

C. CULTIVATE AN EFFECTIVE STAGE PRESENCE. Neither nervousness nor shyness is an excuse for a poor style at the podium. Whenever possible, face the audience -- the entire audience. It is a natural inclination to neglect one side of the audience or the other; avoid that natural tendency like the plague. You never know who is sitting in the ignored section, getting upset that you are not paying attention to them. If you can't stand all those eyes focused on you, look over the heads (and not down at the feet). Face the screen sparingly, likely about one-quarter of the time you would like to do it. The screen does not evaluate your performance or offer you a job.

D. UNDERSTAND THE TOPIC WELL ENOUGH TO BE ABLE TO HANDLE QUESTIONS FROM THE AUDIENCE. When a question is asked, always (without exception) repeat the question. This allows not only people in the back of the hall to hear what has been asked, but it also allows you to rephrase the question so that you can set up your spiffy answer.
7. Nitty Gritty
Do not plan to use a microphone; experience indicates it often does not work well. If you lose your voice to the flu and must use amplification, you will have to locate the microphone for the lecture hall and determine how it works long before you give your seminar.

For a PowerPoint presentation, you must do the following:

• You will need a video cable. Kelly McGovern, Biotechnology/Life Sciences 102, has the following items: laser pointer and video cable. You are responsible for check-out and return!

• Make sure to run all PowerPoint slides in a preview session using the setup in the lecture hall. There are occasions when a complex slide (typically a picture) will not download in the lecture-hall system whereas it works perfectly well with another system.

• If you can’t get the picture to project, consider the toggle switch on the computer that controls where the output is directed. This video mode toggle key (F7 on a Macintosh computer) often has a couple of overlapping rectangles on it. Some computers toggle through two outputs, some three.

An overhead projector is usually available in the lecture hall. But beware that light bulbs do burn out and are often not replaced or reported by the person on watch at the time.

Regular departmental seminars are held in Biotechnology/Life Sciences 402, but defense seminars often need to be scheduled for lecture halls and classrooms in other buildings. Wherever you are scheduled to present a seminar, be sure to check out the lighting, projection quality and acoustics at least a few days before your seminar. Be aware of the quirks of various rooms, such as loud background from ventilation systems, inflexible light settings such as in CUE 202 or the effects of light from windows on the brightness of the projection.

8. Despite All Admonitions
There are certain points that seem to be ignored by too many speakers. The following are the most common themes in my speaker evaluations about improving the quality of the seminar.

• Failure to describe a hypothesis. One of the early slides should cover this.
• Failure to establish the significance of the research for a general audience.
• Inadequate flow of the theme throughout the talk. Use of mini-summaries after every subset of data is often an effective method for maintaining the flow.
• Failure to explain terms, especially acronyms.
• Failure to adequately explain experimental techniques.
• Use of fonts that are too small.
• Use of fonts with serifs.
• Excessive looking away from the audience. (Whether you look away or not, they are still there.)
• Addressing only part of the audience.
• Voice trailing off to inaudibility at the end of sentences or thoughts. (I am often guilty of this myself.)
• Use of meaningless conjunctions (such as "OK", "like", "ya know", "well", "ugh").
• Exuberant use of the laser pointer.
• Use of "media" and "data" as singular nouns. They have been plural nouns since the time of Romulus and Remus.
• Failure to repeat questions from the audience in your own words.

One final note: Remember that you know more than anyone else in the room about your seminar topic. The advantage is with you.
F. PROPOSALS

1. GENERAL GUIDELINES
   a. The core of the proposal should be a series of related critical experiments and relevant controls that test a central hypothesis. Proposals should be the result of your own thoughts and efforts, but you should take advantage of the resources of knowledge and experience provided by your colleagues (other students, postdocs, and faculty). Ask several other scientists, particularly other students, to critique your proposal. In preparing your proposal, be aware that the rules are different for first and second proposal regarding assistance from faculty members.

   b. The research proposal should adhere to the page limits of 10 and 14 single-spaced pages (including title page, specific aims, figures and tables) for First and Second Proposal, respectively. A long proposal is not necessarily a good proposal. Substance and clarity are entirely compatible with brevity. The font must not be smaller than 11 point, and there must be no more than 15 characters per inch (cpi). Helvetica or Arial 11-point are the NIH-suggested fonts. References, in full citation format, are to be added at the end of the proposal and are not included in the page limitations. Finally, pages must be consecutively numbered, beginning with specific aims page.

   c. The format for the proposal should be based on current NIH guidelines as summarized below. Organize the Abstract and the body of the proposal to answer these questions: a) What do you intend to do? b) Why is the work important? c) What has already been done? d) How are you going to do the work?

   i. Abstract (NIH title is Project Summary) with a 250 word limit.
   State the broad, long-term objectives and specific aims, making reference to the biological significance or impact of the project. Avoid summaries or review of literature and the use of the first person. The abstract is meant to serve as a succinct and accurate description of the proposed work, detailing what is the proposed research and why it is important. This section should not include references to the literature.

   ii. Specific Aims
   Describe the broad, long-term objectives of your research effort, their biological significance, the hypothesis to be tested, and concisely what the proposed research will accomplish. Provide a numbered list of defined specific aims (two to four), preferably as testable hypotheses, describing each one in a phrase or a sentence. A second sentence for each aim should explain how you will experimentally test your hypothesis. The length limit is one page. This section should not include references to the literature.

   Your one page of specific aims should provide the following information: What important biological problem is addressed in the application? What is the central hypothesis? What do you intend to do (experimental design)? How will you analyze and integrate the data? If the aims are achieved, what scientific knowledge is gained?
Research Strategy

iii. Significance and Innovation (formerly known as Background and Significance)

Briefly (this section must not resemble a review article) sketch the background for the present proposal in the context of its significance. Critically evaluate existing knowledge, and specifically identify the important gaps that the project is intended to fill. State concisely the importance of the research described in this application by relating the specific aims to the broad, longer-term objectives. Emphasize what are the innovative aspects of the proposal, considering concepts and methods. The major conceptual issues in your proposal should be addressed, but the length should be no more than 25% of the entire proposal.

The significance and innovation section should provide the following information: What is known in the literature? Why is the proposed research important biologically? What is novel about this research? How does this application challenge or advance the existing paradigm or develop new methodologies?

iv. Research Strategy (formerly two sections: Preliminary Results & Research Design and Methods)

Suggested subheadings for each aim are Rationale, Experimental Approach, Anticipated Results, and Limitations and Alternative Approaches. Restate your hypothesis for each aim. Describe the research design and the procedures to be used to accomplish each specific aim. This means discussing primarily the logic of experimental approaches, the data analysis, and interpretation of anticipated results. Incorporate a description of preliminary results pertinent to the proposal that establish the validity of the hypotheses and the feasibility of the proposed approaches. You should discuss the potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims. Provide a tentative sequence or timetable for the investigation. If feasible, include a visual model of your aim.

This section and the subsections within it should not resemble the "Materials and Methods" section of a paper; however, it may be appropriate to discuss technical details if these impact the flow of the experiments. Each specific aim should be considered in an individual section, describing the logical progression of experiments and considering the possible outcomes. It is generally a good strategy to avoid having your entire project (or even one specific aim) depend on the favorable outcome of a single experiment or another specific aim.

The Research Strategy section should provide the following information: What is the rationale for each aim? The rationale should identify the question you are trying to answer, why it is an important issue to address in the context of the central hypothesis and why your chosen experimental design is well-suited to answering this question. What is the experimental approach and the design of the experiments (not detailed methods)? What are the key controls that you will perform? How will you analyze and integrate the data to test the central hypothesis? A useful way to approach this question is to outline what results will support the stated hypothesis and what would different results mean—how would they alter the working hypothesis? What are the potential limitations of your proposed approach? What are the alternative approaches? How will these approaches circumvent the weaknesses/limitations of your proposed approach?
d. After you have written a rough draft, wait a few days and then read the draft critically with the goal of making your style and composition as clear and straightforward as possible. You may consult a good writing manual such as Strunk and White, The Elements of Style (concise and cheap); or Day, How to Write and Publish a Scientific Paper. O'Connor and Woodward, Writing Scientific Papers in English; Woodford, Scientific Writing for Graduate Students; and Trelease, How to Write Scientific and Technical Papers are also good.
2. PROPOSAL I

The First Proposal should be on a research project in the thesis laboratory that the student has begun or plans to pursue. Even though the project is likely to be at an early stage and thus experimental strategies might later evolve, the student should demonstrate an understanding of the relevant literature, develop testable hypotheses, differentiate between what is known and what needs to be done, and propose experiments that are conceptually well defined. Both thesis M.S. and Ph.D. students must successfully write and defend a First Proposal.

The First Proposal can and should involve extensive interactions between you, your laboratory group members (including your advisor), and your thesis committee members. Since the First Proposal must be in the area of your advisor's research, and is likely to be a project you anticipate actually pursuing, it is quite likely that at least some aspects will have been described in a genuine grant proposal written by your advisor. It is fine to use such descriptions as a starting point, but your proposal should reflect your ideas and be written in your own words. The expansion and development of these ideas into an independent proposal should be the result of your own efforts. It is crucial that you are familiar with the literature in your field in preparation for designing your proposal and for explaining it to others. The criteria for success will be whether your committee feels that you have a firm understanding of the relevant literature, of issues concerning the experimental design and of the resources available to you.

- It is anticipated that development of this proposal will be an ongoing collaborative effort between you and your advisor. Early in the formulation of ideas for the first proposal, you can and should consult with your advisor about the scope and suitability of your intended proposal topic.

- You should clear the overall topic and direction of your proposal with your advisor by June 1st of your first year. When you have a good rough draft completed (that you have carefully proofed and revised a number of times), you should show it to your advisor to get feedback about the general suitability of content and format.

- A relatively complete draft of the proposal should be finished by July 31st. We encourage discussion with other faculty and fellow students while formulating your proposal, and the use of fellow students as critical readers. Plan to make many revisions of your proposal. Be sure to show your advisor an essentially final form of your proposal for approval of context and format.

- You should deliver your First Proposal to your thesis committee members and to the SMB academic office in Biotechnology/Life Science 102 by September 3rd of your second year. Please fill in information requested on the Cover Page form provided at end of this handbook (PDF-fillable version is available on the SMB share-point server). Once your proposal has been submitted by September 4th deadline, no further modifications will be accepted. You must orally defend this proposal in front of your thesis committee by October 31st.

**Timeline**
- April: Sign up for 2 credits MBioS 593 during fall preregistration.
- June 1: Discuss the preliminary ideas for a proposal with your thesis advisor.
- June 15: Give your thesis advisor a preliminary draft of your specific aims.
- July 15: A preliminary draft of the full proposal to your thesis advisor; begin contacting your committee members to schedule a proposal defense meeting.
- July 31: A close-to-final draft reviewed by your thesis advisor.
- August: Prepare your Program of Study.
- September 3: Final written proposal with completed cover page due in the SMB Academic Office in Biotechnology/Life Sciences 102 and to the thesis committee members.
- October 31: Oral Defense completed and the Program of Study filed at the Graduate School.

**Specific Format for the First Proposal**

This proposal should be modeled after an NIH National Research Service Award (NRSA) fellowship proposal. Students should go to the appropriate URLs for detailed guidelines.

http://grants.nih.gov/training/nrsa.htm

- The page limit for the proposal is 10 single-spaced pages using an 11 point or larger font (Arial and Helvetica are the recommended fonts)
- Page 1 is a Title page, that includes your name, PI’s laboratory, and 250 word abstract
- Page 2 is the Specific Aims page
- Research strategy cannot exceed eight additional pages
- This page limit includes figures and tables
- Number pages; Specific Aims page should be numbered as page 1
- References are not included in the page limit
- Complete the PDF fillable Cover Sheet

The scope of the project should reflect the work that one full-time researcher could complete in two to three years. Like an NRSA, there is the expectation of minimal preliminary results and that the development of the proposal should be a collaboration with the mentor. Ideally, well-written First Proposals should serve as the basis for applications for external support for pre-doctoral fellowships.
3. PROPOSAL II

In preparing the Second Proposal, be aware that the rules for obtaining assistance are different from those of the first proposal.

The Second Proposal may be based on the results you have obtained on your dissertation project since your First Proposal. Alternatively, as projects can change, your Second Proposal may be based on a relatively new research project that you have initiated. The target deadline is for a final draft is October 1st but the absolute deadline is 10 working days before your defense.

- The objective of the second research proposal is to provide a mechanism that allows you: 1) to conduct experiments and collect preliminary data; 2) to develop a “second generation” hypothesis and experiments, largely based on results you have obtained since completing your First Proposal; 3) to design a longer range project; and 4) to hone your skills in the art of proposal writing. Depending on your results, the Second Proposal can be an expanded version of your First Proposal or may be an entirely new research project.

- The goal is to see whether you can independently design a biologically significant and scientifically sound project by synthesizing the relevant literature and experimental approaches. Therefore, the Second Proposal should represent a scientific advance beyond the first proposal in both the design and scope. The project should reflect the amount of work that two full-time researchers could accomplish in two to three years. You are encouraged to integrate different methodological approaches or models into your proposal, going beyond those normally used in your thesis lab.

- This proposal should be prepared without direct input from your advisor and committee; you cannot give your proposal to your advisor to revise. However, you are encouraged to continue to discuss your research project and its general direction with your advisor. You may use any other resources, such as other graduate students and postdocs, you may have available. In all cases, you should seek help only for technical or methodological questions.

- Your target date for your final draft copy of the proposal to your committee members and a copy to the SMB Academic Office in Biotechnology/Life Sciences 102 is by October 1st; your absolute deadline is 10 working days before your defense date. Please complete the Cover Page form provided at the end of this handbook (PDF-fillable version is available on the SMB share-point server). Once your proposal has been submitted, no further modifications will be accepted. You must orally defend this proposal in front of your thesis committee.

Defense of the second proposal is part of the Washington State University preliminary examination for advancement to Ph.D. candidacy. This examination should be held before November 22nd and must be completed by December 6th.

To schedule your preliminary examination, you must have an approved Program of Study on file at the Graduate School (signed by your thesis committee members and the Associate Director of Graduate Studies, and approved by the Graduate School). The preliminary examination (oral defense of your second proposal) must be scheduled through the Graduate School at least 10 working days before the exam date.
• The preliminary examination consists of two parts, a public seminar on your research and an oral defense of the Second Proposal. In the first part of the defense, the student will present their second MBioS 579 seminar as a public seminar. In the second part, the Second Proposal must be defended in front of your dissertation committee. The criteria for success will be whether your committee feels that you have a firm understanding of the relevant literature and command of the topic area, and that you can defend the approaches you have selected to test your hypotheses. Both the seminar and defense are considered the official Preliminary Examination that must be scheduled through the Graduate School at least 10 working days in advance of the exam date.

• You or any faculty member can request that a Graduate Mentor Fellow from the Graduate Mentor Academy be present at the preliminary examination, as an outside, objective observer. This request is made through the Graduate School, and should be made fifteen working days prior to your examination.

**Timeline**

- April: Sign up for 2 credits of MBioS 579 and 10 credits of MBioS 800 during fall preregistration.
- Mid-Summer: Begin contacting committee members to schedule your seminar and proposal defense meeting (preliminary exam). It is your responsibility to verify the date and time of your preliminary examination with the Graduate Academic Coordinator in the SMB Academic Office to ensure that there are no scheduling conflicts with other SMB functions or preliminary examination. The last day to defend is 22 Nov 2013.
- October 1: Target date for final version of the proposal. The absolute deadline for the final proposal and cover page are due in the SMB Academic Office in Biotech/Life Science 102 and to the committee members is at least 10 working days before your exam.
- 10 working days before your exam: Submit your official Preliminary Examination Form to the Graduate School (the official scheduling form is available on the Graduate School website).

**Specific Format for the Second Proposal**

This proposal should be modeled after an NIH R01 proposal. Students should go to the appropriate URLs for detailed guidelines.  
http://grants1.nih.gov/grants/funding/phs398/phs398.html  
(particularly Part I, section 5)

- The page limit for the proposal is 14 single-spaced pages using an 11 point or larger font (Arial and Helvetica are the recommended fonts).
- Page 1 is a Title page, that includes your name, PI’s laboratory, and 250 word abstract
- Page 2 is the Specific Aims page
- Research strategy cannot exceed 12 additional pages
For the Second Proposal, there is the expectation of significant preliminary results, and these results should form the basis of the second departmental seminar, given immediately before the preliminary examination. If your research project has changed, and you do not have sufficient preliminary data, then your seminar should include background data from your lab or the literature that supports your approach.

4. ORAL DEFENSE AND EVALUATION

The general procedures for the oral defense of the first and second proposals are similar.

- The time, title and place of your oral defense will be advertised to all SMB faculty and associate faculty, all of whom are invited to attend. However, only the thesis committee members and graduate training faculty members officially approved by the Graduate School may vote. The proposals will be available in the SMB Academic Office, Biotechnology/Life Sciences 102.

- The oral defense can be divided into five segments:
  
  o You will be asked to leave the room while the faculty members discuss your general academic and research performance, and make a preliminary evaluation of the written proposal’s strength and weaknesses. The examination procedures will also be discussed. At this time, or prior to the meeting, a faculty member in attendance other than the thesis advisor (committee chair) will be designated as “an acting chair” to run the meeting. This “acting chair” should be an SMB core faculty member, and will oversee the examination procedures and, as necessary, guide the questioning and subsequent discussion of your performance.

  o You will present a 15-20 minute presentation of the research proposal. The faculty members are asked to not interrupt this presentation, unless it is deemed necessary to clarify important issues.

  o The faculty members will ask questions pertaining to the research proposal including the general knowledge related to the field of research. However, you may also be asked about the broader knowledge related to your proposal from the core curriculum and discipline-specific coursework. You should be prepared to defend the approaches you selected to address your aims. Especially for the Second Proposal, this is an examination of your knowledge and command of the topic area.

  o You will be asked to leave the room again while the faculty members discuss your performance. For Second Proposal defenses, the faculty members will vote Pass/Fail for the preliminary examination on official ballots from the Graduate School. The number of votes required for a pass for either proposal defense is listed in the table below.
You will be called back into the examination room and told the outcome of the evaluation of your performance and any remediation necessary for satisfactory completion of the proposal. It is possible to pass the preliminary examination, as determined by the official Graduate School ballots, and still be required to re-write the proposal for the committee. It is the responsibility of the major advisor to communicate the outcome of the proposal defense to the Associate Director of the Graduate Program.

Specific to First Proposal
In the event that you fail the defense of the First Proposal, the thesis committee may decide to allow you to retake the oral defense and/or revise the proposal for satisfactory completion of the proposal requirements.

In preparation for the First Proposal, you should have your Program of Study prepared on the appropriate official forms for the Master’s program or Doctoral program obtained online at http://gradschool.wsu.edu/Forms/. You should be able to describe your program to your committee members and obtain their approval immediately after successfully passing the first proposal defense. After approval by the Associate Director of the Graduate Program, students should submit their Program of Study to the Graduate School for final approval. The approval from the Graduate School can take two to eight weeks. The requirements for graduation are those in effect at the time your Program of Study is approved.

Specific to Second Proposal and Preliminary Examination
In the event that you fail the defense of the preliminary examination and Second Proposal, the Graduate School requires that student will be re-examined for a second and final attempt, unless a Graduate Mentor Fellow was present at the first defense. If it is recommended that the student be allowed to retake the examination, the Graduate School requires that the second examination be scheduled at least three months after the first examination. When scheduling for a second exam, the scheduling form must be submitted at least 15 working days in advance of the exam. In addition, the Graduate School will appoint a Graduate Mentor Fellow to be present at the re-take of the preliminary examination. A student who has failed two preliminary examinations may not become a candidate for the doctorate and the student’s enrollment in the Graduate School will be terminated.

<table>
<thead>
<tr>
<th># of Examiners Qualified to Vote</th>
<th># of Examiners Voting to Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>
G. ANNUAL REVIEW OF GRADUATE STUDENTS

1. All graduate students will be evaluated annually during each spring semester by their committee and at the end of each spring semester by SMB faculty and associate faculty in attendance at the faculty annual review meetings.

2. The evaluation period for first year students is from the beginning of their graduate career at WSU through May. The evaluation period is from May to May for all other students.

3. First year students should have identified an advisor by the time of the annual review and chosen a thesis committee. The review criteria will include the student’s academic record, the faculty evaluations of laboratory rotations, an evaluation from the research advisor, an evaluation of teaching performance (if applicable) and the student’s self-evaluation. Students beyond the first year will be evaluated by similar criteria. Additional input may be provided by members of the student’s thesis committee and other faculty.

4. All graduate students are required to complete the Graduate Student Annual Review form, located at the end of this handbook. PDF fill-able annual review forms are available on the SMB share-point server. Students are responsible for providing all pertinent information requested in Sections A, B, and the first part of Section D (if applicable) of the review form and submitting it to their committee before their annual spring meeting. If inquiries are not applicable, enter N/A. Section B and the first part of Section D require self-assessment of research progress and teaching performance, respectively.

   a. Section B should include your research review and self-evaluation. Describe your publications to date including research papers and book chapters, manuscripts in preparation, and abstracts, professional papers and posters presented. Summarize your research progress and plans. What are your strengths and weaknesses? How will you improve your weaknesses? What are your research goals for the coming review period? Comment on progress toward accomplishing goals set the previous year and what has been accomplished in this review period. The narrative on the accomplishments page can address a variety of topics, including high grades, demonstrating an improved command of literature, meeting seminar and proposal requirements, mastering new techniques, presentations at professional meetings, submission or publication of a journal article and service-oriented activities for the School, the University, or scientific outreach services to the community.

   b. The first part of Section D is a self-assessment of your teaching performance. Identify the course for which you were a TA, and amount of time needed per week. Briefly describe the primary duties and student evaluations of your teaching performance.

   c. Sections A and B should be completed in preparation for the student’s annual spring committee meeting and should be provided to the committee for review before this meeting. Advisors may comment on the student’s research progress and accomplishments for this current review period or on research potential for a first year student, understanding of the scientific literature, the student’s strengths and weaknesses, areas for improvement, results of the latest committee meeting, proposal defense, seminar performance, and research benchmarks for the next review period. The research advisor, in consultation with the
dissertation/thesis committee, should complete section C after the annual spring committee meeting. The student should discuss the completed review with the advisor and then both student and advisor should sign and date the review form, indicating that the completed review form has been discussed.

d. After the student has completed the first part of Section D, this section should be given to the faculty who supervised the student’s teaching. The teaching supervisor will complete the second part of Section D, and comment on the student’s teaching efforts and competence. The student and supervisor should discuss the teaching evaluation and then both should sign and date the form indicating that the evaluation has been discussed.

5. All graduate students are required to submit a completed Graduate Student Annual Review form by the first Friday after final exams week of the spring semester. First year students should have three or four Graduate Student Laboratory Rotation Reviews on file. Rotation reviews should have been completed within two weeks of the completion of each laboratory rotation. Completed review packages should be submitted to Kelly McGovern in Biotechnology Life Sciences 102.

6. At the annual faculty review meeting, the Associate Director of Graduate Studies and members of the Graduate Affairs Committee will present the students’ annual review packages to the faculty members in attendance. Annual review information will be forwarded to the Graduate School and a copy will be retained in the student’s file.

7. After the annual review meeting, each student will receive a memo summarizing the faculty’s evaluation of his/her performance and a recommendation. The faculty recommendation can be: a) satisfactory performance, recommending continued enrollment; b) satisfactory performance with deficiencies, specifying conditions to be met for continued enrollment; and c) unsatisfactory performance, recommendation of dismissal from the SMB graduate program.

8. In case of a recommendation of dismissal for unsatisfactory performance, the student may respond in writing to the faculty review and recommendation. The Graduate Affairs Committee will consider the student’s response. In the absence of sufficient mitigating factors, the GAC will submit a recommendation to the Graduate School for termination of enrollment and dismissal from the SMB graduate program because of unsatisfactory progress toward degree objectives.
H. STUDENT STANDARDS, ACCOUNTABILITY AND ACADEMIC-integrity

1. Student Conduct
SMB adheres to the Student Standards and Accountability Policy of Washington State University. It is your responsibility to visit the websites listed at http://conduct.wsu.edu/ concerning WSU policies on student standards and accountability, read the pertinent documents, and follow the rules and policies of WSU.

2. Academic Integrity
SMB supports the Academic Integrity Policy of the Washington State University. It is your responsibility to visit the websites listed below concerning WSU’s policy on academic integrity, read the pertinent documents, and follow the rules and policies of the University.
http://conduct.wsu.edu/academic-integrity-policies-and-resources/
Follow the supplied links for Academic Integrity and Plagiarism tutorials

WSU policy (WAC 504-26-010) states, “Academic dishonesty, such as cheating, plagiarism, fabrication, and fraud, is prohibited.” Plagiarism is defined as the unauthorized use of the language or thoughts of another person, and the representation of them as one’s own. (Random House Webster’s College Dictionary, 1991)

It is the student’s responsibility to learn proper citation conventions for proposals and journal articles. All students must review the appropriate WSU documents, attend an SMB workshop on student conduct, academic integrity, and plagiarism and sign an affidavit acknowledging his/her understanding these documents. A copy of the affidavit is included in this handbook.

3. SMB Standard Operating Procedure for a Violation
A letter stating the nature of the academic violation, along with all appropriate documentation, will be brought to the attention of Associate Director of Graduate Studies. The Associate Director and members of the Graduate Affairs Committee (GAC) will serve as third-party reviewers of the case, and a simple majority vote will determine the outcome. The primary thesis advisor may write a letter to the Associate Director, which will be brought to the attention of the GAC, but only third party members are allowed to vote on the outcome. No peer review will be involved. The school will keep a record of the academic violation in a separate file with all recorded cases in SMB. The recommended outcomes for violations of the SMB or WSU Academic Integrity Policies include:

- The outcome can be an “F” for the assignment/exam or for the entire course, as well as a recommendation to the faculty for the termination of the student and/or a report to the Graduate School for a review by the WSU committee handling academic integrity violations.

- If either the First or Second Proposal exams are involved, the oral defense must be discontinued and a “U” grade may be assigned to the 700 or 800 credits. After review by the GAC, if it is deemed appropriate, the student may take the oral defense at a later date.

- Students found responsible for academic integrity violations in their research or special problems/directed research may receive a “U” grade for unsatisfactory progress for that term. Repeat and/or serious offences may result in the referral to the conduct board and expulsion.
from WSU. In addition, academic integrity violation may result in the loss of teaching and/or research assistantships.

- When the student is informed of GAC decision, he/she will also be told about the SMB Ombudsman and the WSU appeals process, as noted in the WSU websites cited above.

I. ACADEMIC REGULATIONS, PROCEDURES AND RESPONSIBILITIES

1. DEFINITION OF GOOD STANDING FOR SMB GRADUATE STUDENTS
   a. For satisfactory academic performance, a graduate student must have a cumulative GPA equal to or greater than 3.0.

   b. SMB adds the more stringent requirement that the GPA calculated from grades in the SMB core and discipline-specific courses must be 3.0 or higher for satisfactory academic performance.

   c. Any student, who fails to maintain a GPA of 3.0 or higher in SMB core courses after two semesters, is not eligible for a teaching or research assistantship.

   d. Students must be accepted into the laboratory of a SMB graduate trainer to do their thesis work no later than the end of the second semester of their first year to maintain good standing in the program. Failure to find a lab in which to perform research may result in loss of financial support and termination from the SMB graduate program.

   e. Failure to make adequate progress in your research may result in the loss of financial support and termination from the SMB graduate program.

2. EARNED CREDITS, THESIS/DISSERTATION CREDIT AND GPA CALCULATION
   a. If a student earns a grade of “C-“ or below in a course listed in his/her Program of Study, he/she must repeat the course for graded credit, not as Pass/Fail credit.

   b. All grades, except for the first grade in a repeated course, are averaged to calculate the student’s cumulative GPA.

   c. It is a requirement of the Graduate School that students may not carry a grade of “I” (incomplete) longer than one semester or summer session while on a teaching or research assistantship. After one year, the grade of “I” will be converted to an “F” grade on your transcript and your GPA will be adjusted appropriately.

   d. A student may petition to the Graduate School to withdraw from a course if the Registrar’s deadline has passed by filling out the Graduate Student Petition form with the approval of the instructor and the Associate Director of Graduate Studies.

   e. 700/702 and 800 credits. Credits are variable and grading is satisfactory/unsatisfactory (S/U). Credit is awarded for a grade of “S”; no credit is awarded for a grade of “U.” The S/U grades do not carry and quality points and are not calculated in the grade point average (GPA).
Students found responsible for academic integrity violations in their research or special problems/directed research may receive a “U” grade for unsatisfactory progress for that term. Repeat and/or serious offences may result in the referral to the conduct board and expulsion from WSU. In addition, academic integrity violation may result in the loss of teaching and/or research assistantships.

3. CONTINUOUS ENROLLMENT POLICY AND TRANSFER OF GRADUATE CREDITS
   a. SMB will follow the Continuous Enrollment Policy of the Graduate School. All full and part-time degree-seeking graduate students must maintain continuous enrollment in the Graduate School, registering for each semester, excluding summer sessions (unless you are on an assistantship), from the time of first enrollment until all requirements for the degree are completed. Exceptions are made for periods during which the student is on official graduate leave or emergency medical or family leave.

   b. SMB will follow the policy of the Graduate School regarding transfer of graduate credits.

   c. If credits have been earned after the completion of a bachelor’s degree from an accredited graduate school (with a grade of B or higher) and are considered appropriate to the student’s program of study, the credits may be transferred and applied toward a WSU graduate degree. Credits for research and thesis problems, workshops, seminars, laboratory instruction and correspondence courses are not approved for transfer as graduate credits. SMB does not allow transfer courses to substitute for the three core courses (MBioS 503, 504 and 513) except under extraordinary circumstances.

   d. Graduate students with a bachelor's degree from WSU can apply up to 6 graduate credit hours (500 level with a grade of B or higher) toward a graduate degree, as long as the courses were not used to fulfill their bachelor’s degree requirements. Approval from the Graduate School to use the credit hours towards a graduate degree must be obtained when the student registers for the course, not afterward. Students in good standing in the STARS (Students Targeted toward Advanced Research Studies) program are subject to different, program-specific criteria for setting aside credits toward a Ph.D.

   e. For a master’s degree, the number of credit hours that can be transferred is limited to half of the total, required graded course credits. For a doctoral degree, the student’s thesis committee, with approval from the Associate Director of Graduate Studies, will make a recommendation to the Graduate School regarding the number of allowable transfer credits.

   f. Transfer of graduate credit is requested formally by listing the courses on the student’s Program of Study. However, preliminary determination of acceptable credits for transfer can be made earlier by request to the Graduate School, through the Associate Director of Graduate Studies.

4. ACADEMIC REINSTATEMENT, TERMINATION, RE-ENROLLMENT
   a. SMB will follow the reinstatement and termination policies of the Graduate School.

   b. During the first semester, a graduate student with a cumulative GPA between 2.75 and 3.0
after one semester of coursework will be reinstated automatically. After a student’s first term, reinstatement is not automatic.

c. A graduate student with a cumulative GPA below 2.75 after one semester of coursework will receive a letter from the Graduate School that he/she will be terminated. The Associate Director of Graduate Studies, after consultation with the Graduate Affairs Committee, may write a letter to the Dean of the Graduate School requesting reinstatement of the student. The student must provide a reasonable plan for improvement of his/her academic performance.

d. If the student’s cumulative GPA increases to above 2.75, but below 3.0, after two semesters of instruction, the Associate Director of Graduate Studies, after consultation with the Graduate Affairs Committee, may write a letter to the Dean of the Graduate School requesting reinstatement of the student. If approved by the Dean of the Graduate School, the student will have one more semester to increase his/her GPA to 3.0. If the student’s GPA is still less than 3.0 after three semesters of coursework, the student will be terminated for unsatisfactory academic performance.

e. If the student’s GPA is below 2.75 after two semesters of instruction, the student is not eligible for reinstatement and will be terminated for unsatisfactory academic performance.

f. A graduate student who was dismissed for unsatisfactory academic performance may request re-enrollment if improved academic performance can be demonstrated. The request will be evaluated by the Associate Director of Graduate Studies and either the Graduate Recruiting Committee or the Graduate Affairs Committee. If the request is deemed acceptable, the Associate Director will write a letter to the Graduate School requesting re-enrollment.

5. EXCEPTIONS TO POLICY PROCEDURE
a. Requests for an exception to policy for a student should be submitted in writing to the Associate Director of Graduate Studies by the thesis advisor with documented approval of the thesis committee members, when applicable.

b. The written requests for exception will be forwarded to the Graduate Affairs Committee for discussion. The committee must approve any request for an exception to policy, especially for a student without a thesis committee.

c. After appropriate approvals from the thesis committee and the Graduate Affairs Committee, the Associate Director of Graduate Studies will write a memo to the Dean of the Graduate School requesting an exception to policy. As per Graduate School policy, the Dean may then act upon the request or refer it to the WSU Graduate Studies Committee for a decision.

6. LEAVE AND VACATION TIME
a. RA and TA assistantship appointments run continuously from August 16th to May 15th and also during the summer session. If you are on an assistantship, a minimum expectation is to follow the staff workday calendar including periods when the University (classes) is not in session with the exception of the legal holidays designated by the Board of Regents.
b. Graduate students on appointment do not earn annual leave or sick leave. Any leave or vacation time should be arranged with your supervisors (research and/or teaching) in advance. Your research plans should dictate your time at work, rather than your vacation schedule dictate your research plans. Furthermore, it is imperative that you notify your supervisor and/or other lab personnel if you will miss work for illness.

SMB adheres to the Graduate School policy described in the Policies and Procedures, Chapter 5:
The appropriate form is available at:
http://www.gradsch.wsu.edu/Documents/PDF/Short-TermParentalLeaveForm.pdf
J. TRAVEL AWARDS FOR GRADUATE STUDENTS

SMB encourages students to present their research at professional meetings and provides travel grants to help defray the costs of doing so.

- The program will award up to $350 to defray the cost of travel, registration and/or accommodations at a scientific meeting.
- These awards are competitive, and the number of awards will be based on the availability of funds.
- Only graduate students presenting a poster or paper as a primary author are eligible.
- Matching funds from the PI are encouraged, but not required.
- The Graduate Affairs Committee will review the applications and choose award recipients.
- A student will not receive more than one travel award in a calendar year and no more than two travel awards in his/her graduate career.
- Students should pursue additional potential sources to support travel and meeting registration costs including awards from the Graduate Professional and Student Association (http://www.gpsa.wsu.edu/) and the society sponsoring the meeting.
- Awards will be distributed across SMB and will not be dominated by any group or lab.
- The meeting should be central to the interest of the applicant and of high overall quality.
- Students are expected to pursue the most economical transportation rates and lodging options to save on costs. It is recommended that you make reservations early for lower rates.
- The program will also award up to $300 towards travel and accommodations for graduate students to return to their undergraduate alma mater for recruiting purposes.

The SMB Travel Application Form is provided at the end of this handbook. Applications can be submitted three times per year: September 1 for fall travel; January 10 for spring travel; and May 2 for summer travel. Completed applications should be delivered to the Graduate Academic Coordinator in Biotechnology/Life Sciences 102.
K. EXCELLENCE AWARDS TO GRADUATE STUDENTS

SMB promotes excellence in research, teaching, and service by our graduate students. Meritorious performance in these areas are recognized by awards given out at the School annual retreat.

SMB Excellence in Research Award
2004 Jen Adair
2005 Matt Arterburn
2006 Chad Bjorklund
2007 Daniel Vassão
2008 April Binder
2009 Charlie Larson
2010 Nathan Tucker
2011 Jason Neal-McKinney
2012 James Rosser

SMB Excellence in Teaching Award
2005 Kriti Arora
2006 Danelle Whiteford and Nicole Bjorklund
2007 April Binder
2008 Dalia Lau Bonilla
2009 Marian Laughery
2010 Brandon Kyriss
2011 Kris Christensen
2012 Derrick Samuelson

SMB Excellence in Service Award
2005 Duane Hoch
2006 Matt Stump
2007 Sara Belchik and Tracy Clement
2008 Nadine Santos
2009 McKenna Kyriss
2010 Paul Guyett
2012 Elyse Donaubauer

Additional awards and fellowships are given, based on merit, to support the travel of graduate students to national meetings or to supplement stipends. These monetary awards are made possible by the generous contributions of former students and their families, former faculty and their families and other benefactors.

Awards to support travel:
SMB Travel Awards
Dr. R.A. Nilan Travel Awards
Dr. Bruce Gibbins Graduate Travel Award in Molecular Biosciences
Fellowships to supplement stipends:
  SMB Graduate Student Promise Stipend Supplement Award
  Victor Burke Memorial Fellowship (medical microbiology)
  Stephen Fodor and Janelle Benoit Graduate Fellowship (molecular biosciences)
Fellowships to supplement stipends, cont.:
  C. Glen King Fellowship (biochemistry)
  Louis Mallavia Memorial Fellowship (microbiology)
  Robert & Winona Nilan Graduate Fellowship (genetics & cell biology)
  John & Vera Ross Medical Microbiology Fellowship
  Seabrandt Memorial Graduate Fellowship (environmental microbiology)

School of Molecular Biosciences Training Grant

L. SCHOOL OF MOLECULAR BIOSCIENCES OMBUDSMAN

You should contact the Ombudsman if you have a problem or conflict related to the School of Molecular Biosciences or WSU that is beyond your ability to resolve with resources such as your thesis advisor or the Associate Director for Graduate Studies. The Ombudsman will serve as a neutral and confidential listener, and will help to mediate a resolution to problems or provide information about further steps that can be taken. The Ombudsman is also a confidential resource for information concerning University and School rules, policies, and procedures.

The SMB Ombudsman is Dr. Michael (Mike) Konkel, Biotechnology/Life Sciences 302C, konkel@vetmed.wsu.edu, (509) 335-5039.
M. NON-THESIS MASTER’S DEGREE

The policy of the School of Molecular Biosciences is to not offer non-thesis master’s degree in Molecular Biosciences within the discipline-specific options of Biochemistry, Genetics & Cell Biology or Microbiology. However, in certain situations, it may be deemed appropriate for students, previously admitted to pursue a thesis degree program, to terminate their studies with a non-thesis master’s degree. This document details the requirements set forth by SMB and the Graduate School for the awarding of a terminal non-thesis master’s degree.

1. Students must meet the Graduate School course requirements for a non-thesis Master’s degree.
   - 30 hours minimum of total credit
   - 26 hours minimum of graded course work
   - 17 hours minimum of graded course work at the 500-level
   - 4 hours minimum of credit in MBioS 702; two credits must be taken in the semester of project completion/graduation
   - 9 hours maximum of non-graduate 300 and 400 level graded course work credit

2. Academic Standard
   - To be awarded the non-thesis Master’s degree, the Graduate School requires that a student must have a 3.0 cumulative GPA and a 3.0 program GPA. Other Graduate School requirements apply.
   - To that, the School of Molecular Biosciences adds the more stringent requirement that students must have a 3.0 GPA or better in the SMB core and discipline-specific courses (MBioS 501, 503, 504, 550, 513 or equivalent).
   - A graduate student who fails to establish and maintain the academic standard as indicated above and in Section I. Academic Regulations, Procedures and Responsibilities will be terminated from the program.

3. Selection of Non-thesis Committee
   - Students should choose a primary advisor who is an SMB faculty or an associate faculty member, and at least three additional faculty members to serve on the non-thesis committee. Two members of the committee must be SMB core faculty members.

4. Submission and Approval of the Program of Study
   - The committee should help students develop and then approve a Program of Study as outlined by the Graduate School. The Program of Study must be approved by the Associate Director of Graduate Studies and the Graduate School by the beginning of the semester before the semester of graduation and prior to the semester of registration in MBioS 702.

5. MBioS 702 Requirement
   - Students must enroll in MBioS 702 “Master’s Special Problems,” for a total of 4 credits, and write a faculty-mentored research proposal, which can be based on preliminary experimental data and/or published literature.
• The objective of the paper is to use library resources to develop a proposal that could be completed in approximately two to three years by one full-time researcher. This mechanism should: 1) challenge the student to think creatively; 2) encourage the student to interpret and integrate concepts and methodologies in the field of biochemistry, biophysics, cell biology, genetics, or microbiology; and 3) demonstrate the ability to use analytical thought and the scientific method in problem solving.

• The research proposal should not be more than 10 single-spaced pages, including figures and tables. The font should be 11 point or larger; Helvetica or Arial 11-point is the NIH-suggested font. References are not included in the page limitations.

• The format of the proposal should conform to the SMB Guidelines for Proposals in Section F.

• A copy of the final written research proposal and the completed cover page form (located at the end of this handbook) are due to the members of the M.S. committee and to the SMB Academic Office, in Biotechnology/Life Sciences 102, ten working days before the final examination.

• A successful first proposal defense constitutes the SMB fulfillment of the MBioS 702 requirement. Students must still enroll in MBioS 702 “Master’s Special Problems,” for a total of four credits, with a minimum of two credits being completed the term in which you are defending, to complete the Graduate School requirements.

6. Final Master's Examination

• The student must be registered for a minimum of two credits in MBioS 702 for the semester during which the final examination is to be taken. At least 10 working days before the final examination is scheduled, the completed Non-Thesis Final Oral Scheduling Form (with signatures from the M.S. committee and the Associate Director of Graduate Studies) must be submitted to the Graduate School. The final examination will be conducted by the M.S. committee, and attendance is open to all SMB faculty and associate faculty. The examination will normally consist of a short presentation, 20-25 minutes, by the student, followed by a question and answer period directed by the attending faculty. However, only graduate training faculty can vote. The examination will be approximately an hour in duration and is limited to one and one-half hours.

• In the event that the student fails the final examination, a second and final attempt may be scheduled after a lapse of at least three months upon approval of the M.S. Committee.

<table>
<thead>
<tr>
<th># of examiners qualified to vote</th>
<th>minimum # of examiners voting to pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
</tr>
</tbody>
</table>
N. MOLECULAR BIOSCIENCES GRADUATE MINORS

The SMB offers non-university approved minors in Biochemistry, Genetics and Cell Biology, or Microbiology to any interested doctoral students at WSU.

- Minimum course requirement will be 12 graded credit hours in each minor of the following disciplines:
  - Biochemistry: MBioS 503, 504, 513, and 514
  - Genetics and Cell Biology: MBioS 501, 503, 504, and 513
  - Microbiology: MBioS 410, 540, 542, and 550

- The same course can be used for the Major and the Minor requirements. SMB will be notified if the student has less than a 3.0 GPA in the Minor coursework.

- At least one member of the thesis committee must be an SMB core faculty member. Students can apply for a graduate minor on the Program of Study. Both the SMB Associate Director for Graduate Studies and the SMB faculty member who has agreed to serve on the student’s committee must sign the Program of Study.

The SMB waives the Minor examination and thus the preliminary exam shall cover both the major and minor disciplines. The faculty member from the SMB on the student’s committee must be present at the preliminary and final examinations and he/she shall vote with the major department/program.
SCHOOL OF MOLECULAR BIOSCIENCES FORMS
# Academic Checklist for Graduate Students

Name of Student ___________________________ Degree Sought & Track __________

Previous Institutions, Degree(s), Date awarded: __________________________________________

---

## A. General Background (check if completed)

<table>
<thead>
<tr>
<th>Course</th>
<th>1st Attempt</th>
<th>2nd Attempt</th>
<th>3rd Attempt</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Chem</td>
<td>1 yr</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td>1 yr</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Organic Chem</td>
<td>1 sem</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td>1 yr</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Quant. Analysis</td>
<td>1 sem</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Math</td>
<td>1 yr</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Biochemistry</td>
<td>1 sem</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Calculus?</td>
<td>Y</td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

## B. Core Coursework (check if completed)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBioS 503 – Molecular Biology I</td>
<td>3 cr.</td>
<td></td>
</tr>
<tr>
<td>MBioS 507 – Critical Analysis of Scientific Literature</td>
<td>2 cr.</td>
<td></td>
</tr>
<tr>
<td>MBioS 513 – General Biochemistry</td>
<td>3 cr.</td>
<td></td>
</tr>
<tr>
<td>MBioS 504 – Molecular Biology II</td>
<td>3 cr.</td>
<td></td>
</tr>
<tr>
<td>MBioS 508 – Quantitative Approaches in Molecular Biosciences</td>
<td>2 cr.</td>
<td></td>
</tr>
<tr>
<td>Phil 530 – Bioethics</td>
<td>2 cr.</td>
<td></td>
</tr>
</tbody>
</table>

## C. Discipline-specific course (check if completed)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBioS 501 – Cell Biology; 529 - Selected Topics…</td>
<td>3 cr.</td>
<td></td>
</tr>
<tr>
<td>MBioS 514 – General Biochemistry</td>
<td>3 cr.</td>
<td></td>
</tr>
<tr>
<td>MBioS 550 – Microbial Physiology</td>
<td>3 cr.</td>
<td></td>
</tr>
</tbody>
</table>

## D. Proposals (both M.S. and Ph.D. do 1st proposal, Ph.D. do 2nd proposal, check if completed)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBioS 593 – 1st Proposal (S/F)</td>
<td>2 cr.</td>
<td></td>
</tr>
<tr>
<td>MBioS 800 – 2nd Proposal, Ph.D. Preliminary Exam (S/U) variable cr.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## E. Seminars all taken as S/F (check if completed)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBioS 541 – Faculty Research Seminar</td>
<td>1 cr.</td>
<td></td>
</tr>
<tr>
<td>MBioS 579 – Seminar</td>
<td>2 cr.</td>
<td></td>
</tr>
</tbody>
</table>

(1 for M.S.; 3 for Ph.D.)

## F. Electives (List of suggested elective courses in Section D of Graduate Student Handbook)

Elective 1: ________________________________  Elective 2: ________________________________
SCHOOL OF MOLECULAR BIOSCIENCES
STUDENT CONDUCT AND ACADEMIC INTEGRITY CONTRACT

Please read and initial each statement on the line provided.
This document that you have signed will be kept in your file.

1. Student Conduct

SMB supports the Student Standards and Accountability of the University. Websites concerning WSU core values and student conduct are:
http://conduct.wsu.edu/

I have read the documents from these websites and I understand their content. Furthermore, I agree to abide by the standards of conduct detailed in these documents.

2. Academic integrity

WSU policy (WAC 504-26-010) states, “Academic dishonesty, such as cheating, plagiarism, fabrication, and fraud, is prohibited.”

SMB supports the Academic Integrity Policy of the University. Websites concerning WSU Academic Integrity are (visit for more information):
http://conduct.wsu.edu/academic-integrity-policies-and-resources/
Follow the supplied links for Academic Integrity and Plagiarism tutorials

I have read the documents from these websites and I understand their content. Furthermore, I agree to abide by the policies of academic integrity detailed in these documents.

3. Plagiarism

Plagiarism is defined as the unauthorized use of the language or thoughts of another person, and the representation of them as one’s own. (Random House Webster’s College Dictionary, 1991)

I have read and understand this definition.

I understand that it is my responsibility to learn proper citation conventions (rules) for all my class papers, proposals, dissertation, and any scientific journal articles I may write.

I understand that inclusion of the words of others in a paper or manuscript without proper citation is plagiarism. I understand that inclusion of extensive sections of text, copied verbatim from a source, is also inappropriate.

I understand that falsifying sources is also considered cheating and will result in the same consequences as any other form of plagiarism.
I understand that I may be asked to provide photocopies or originals of any sources I use, including downloads from the Internet, which should include the URL.

I understand the SMB standard operating procedure for any academic violation. Any plagiarism on my part may result in an “F” in a graded course, and/or notification of the Dean of the Graduate School. I also understand that it may result in dismissal from the SMB graduate program.

I understand if I am found responsible for academic integrity violations in their research or special problems/directed research (700, 702 or 800) may receive a “U” grade for unsatisfactory progress for that term. Repeat and/or serious offences may result in the referral to the conduct board and expulsion from WSU. In addition, academic integrity violation may result in the loss of teaching and/or research assistantships.

4. Summary Statement

I have read and understand the above contract, as indicated by my initials after each paragraph, and agree to abide by the rules and policies of the School of Molecular Biosciences and the Washington State University.

Printed Name: ________________________________
Signature: ________________________________    Date: __________________________
SCHOOL OF MOLECULAR BIOSCIENCES
GRADUATE STUDENT LABORATORY ROTATION REVIEW

The student is responsible for completing Sections A and B, and then giving the form to his/her rotation advisor for completion of Section C. The student should ensure that both signatures are at the bottom of the form. The student is responsible for returning this form to Kelly McGovern in Biotechnology/Life Sciences 102 (Zip 7520) within 2 weeks of the completion of the lab rotation.

A. Student:

Rotation Advisor:

First Rotation □ Second Rotation □ Third Rotation □ Fourth Rotation □

B. To be completed by Student. Please describe your laboratory rotation experience and then share this with your advisor before s/he fills out section C. You may comment on items such as your attendance at laboratory meetings, reading the literature, learning new techniques and how many hours per week usually spent in the lab as well as any results obtained and their significance. Feel free to use more space if you wish.
C. To be completed by the Lab Rotation Advisor. Please provide a short evaluation of the student named on the previous page, who has completed his/her rotation in your lab. Please comment on the student’s research potential, responsibility, initiative to learn about the project, and an evaluation of research presentation, if applicable. Also, comment on the number of hours spent in the laboratory per week.

☐ Excellent  ☐ Satisfactory  ☐ Needs Improvement  ☐ Unsatisfactory

I have read and discussed this with the laboratory rotation advisor.

_________________________________________  _______________________________________
Student's signature and Date                Advisor's signature and Date
SCHOOL OF MOLECULAR BIOSCIENCES
COVER PAGE FOR FIRST RESEARCH PROPOSAL (MBIOS 593)

Student’s Name: ________________________________

Entering Year: ________________________________

Date and Time of First Proposal Oral Defense: ________________________________

Location: ________________________________

Title of First Proposal: ____________________________________

Thesis Committee (at least two members must be SMB faculty)

Chair: ________________________________

____________________________

____________________________

____________________________

____________________________

____________________________

Is your Program of Study attached: Yes_____ if not, when will it be ready _______________
SCHOOL OF MOLECULAR BIOSCIENCES
REPORT FOR FIRST RESEARCH PROPOSAL (MBIOS 593)

Student: ____________________________________________

Date & Time of First Proposal Oral Defense: __________________________

Title of First Proposal: ____________________________________________

Thesis Committee (at least two members must be SMB faculty)

PI/Chair: ____________________________

_________________________________________________________________

_________________________________________________________________

PASS ______ FAIL ______ SPECIFY COMMITTEE RECOMMENDATION:

Allow second examination ________ Expected timing of 2nd examination ________

Do not allow re-examination ________

Recommended change in degree program

Thesis MS ______ Non-thesis MS ______ Termination from graduate program ______

Describe any conditions for satisfactory completion of this proposal. Use additional pages if necessary.

Meeting Chair Signature and Date ________________________________

Student Signature and Date ________________________________

Please mail to Kelly McGovern at campus zip 7520 in a sealed envelope or return it to Biotechnology/Life Sciences 102.
The preliminary exam must be scheduled with Graduate School ten working days before the defense.

Title of Second Proposal: ________________________________________________

Thesis Committee (at least two members must be SMB faculty)

Chair: __________________________

______________________________
______________________________
______________________________
______________________________
______________________________
SCHOOL OF MOLECULAR BIOSCIENCES
REPORT FOR SECOND RESEARCH PROPOSAL (MBIOS 800)

Student’s Name: ____________________________

Entering Year: ______________

Title of Second Proposal: ____________________________________________________________

Date & Time of Preliminary Exam: ____________________________________________

Thesis Committee (at least two members must be SMB faculty)

PI/Chair: ____________________________

__________________________________________________________

PASS ______ FAIL ______ SPECIFY COMMITTEE RECOMMENDATION:
Allow second examination _______ Expected timing of 2nd examination _______
Do not allow re-examination ________
Recommended change in degree program:
Thesis MS ______  Non-thesis MS ______ Termination from graduate program ______

Describe any conditions for satisfactory completion of this proposal. Use additional pages if necessary.

Meeting Chair Signature and Date _________________________________________________

Student Signature and Date _______________________________________________________

Please mail to Kelly McGovern at campus zip 7520 in a sealed envelope or return it to
Biotechnology/Life Sciences 102.
SCHOOL OF MOLECULAR BIOSCIENCES
GRADUATE STUDENT RESEARCH REVIEW REPORT

This portion of the form should be completed by the student before any research review meeting with his/her thesis or dissertation committee. After completion, copies should be given to each committee member and to Kelly McGovern in Biotechnology/Life Sciences 102 (Zip 7520).

Name (Print): __________________________ Date of meeting: __________________

Degree Program: __________________________
      (MS, PhD, BC/BP, GenCB, Micro, MBioS)

Year Entered: ____________ Anticipated degree completion date: ____________

Advisor:

__________________________

Committee members:

__________________________  __________________________

__________________________  __________________________

A. Describe your publications to date. Please list:
1. Published manuscripts and book chapters
2. Manuscripts in preparation (include expected date of submission)
3. Abstracts (professional papers presented)
B. Summarize your research progress and plans. Attach additional pages as necessary, but this section of your report should not exceed two single-spaced pages. A bulleted outline format is acceptable. Please answer the three following questions:

1. What research goals did you propose to accomplish at your last research review?
2. What have you accomplished since your last review?
3. What are your proposed future directions and goals?
SCHOOL OF MOLECULAR BIOSCIENCES
GRADUATE STUDENT RESEARCH REVIEW REPORT

This portion of the form is to be completed by the committee chair, in consultation with members of the thesis/dissertation committee, after the student’s research review meeting. After completion, copies should be given to the student, each committee member and to Kelly McGovern in Biotechnology/Life Sciences 102 (Zip 7520).

Name (Print): ___________________________ Date of meeting: ____________________

Degree Program: _______________________ Year Entered: _______________________
(MS, PhD, BC/BP, GenCB, Micro, MBioS)

Advisor: ______________________________

Committee members:

_________________________  __________________________
_________________________  __________________________

Overall assessment of research progress toward degree

_______ Excellent    _______ Satisfactory    _______ Needs improvement

A. Summarize the results of the meeting. Please describe the student’s accomplishments and address areas needing improvement with specific recommendations and requirements. Attach additional pages as needed.
Recommendation of the Committee:

Continuation in the current degree program .............................................................

Change from current degree program .................................................................
  Change to a thesis MS ......................................................................................
  Change to a non-thesis MS .............................................................................
  Other recommendation, specify below ..............................................................

State reasons and conditions for the recommendation:

Signature of Committee Chair:
______________________________________________________________________________

Date

Signature of graduate student:
______________________________________________________________________________
SCHOOL OF MOLECULAR BIOSCIENCES
GRADUATE STUDENT ANNUAL REVIEW FORM FOR 2013-14

The annual review of graduate students evaluates many facets of academic performance, including research, coursework, teaching and service. The evaluation period for the annual review is usually from August to May for the first year students and from May to May for all other students. The purpose of this form is provide a tool for a student’s self-evaluation as well as evaluation of the student by his/her mentors, namely the student’s research advisor, dissertation/thesis committee and TA supervisor.

Each student is responsible for completing Sections A and B, and the first part of Section D (if applicable). Sections A and B should be completed in preparation for the student’s annual spring committee meeting and should be provided to the committee for review before this meeting. The research advisor, in consultation with the dissertation/thesis committee, should complete Section C after the annual spring committee meeting. The student should give his/her completed version of Section D to his/her TA supervisor for completion. The student is responsible for ensuring that the student and his/her research and teaching advisors have signed at the bottom of the Sections C and D, respectively.

After completion, return this form to Kelly McGovern in BLS 102, zip 7520 by Friday, May 16th, 2014.

Name: ___________________________

Advisor: __________________________

Committee members:
__________________________
__________________________
__________________________

Year Entered: ___________ Degree Program: _______________________
(MS or PhD; discipline-track: Biochem, GenCB or Micro)

Date of Spring Committee meeting: ____________

Dates of other recent committee meetings: ____________
Complete A and B and give to your committee before your annual meeting.

A. Progress toward degree:

1. Cumulative GPA: ________________

2. Program of Study filed? (Yes or No) ______  Date approved: ________________

3. First proposal.  Date completed: __________  Grade if applicable ______

4. Second proposal.  Date completed: __________  Grade if applicable ______

5. Dates of Seminars ________________  __________________  ________________

6. Seminar attendance (estimate the percentage):  ○ 0%  ○ 25%  ○ 50%  ○ 75%  ○ 100%

7. Anticipated degree completion date: ________________

B. Research Review and self-evaluation.

B.1. Describe your publications to date. Please list:
   i. Published manuscripts and book chapters
   ii. Manuscripts in preparation (include expected date of submission)
   iii. Abstracts (professional papers and posters presented)
B.2. **Summarize your research progress and plans.** Attach additional pages as necessary, but this section of your report should not exceed two single-spaced pages. A bulleted format is acceptable. Please address the following questions:

1. What research goals did you propose to accomplish at your last research review?
2. What have you accomplished since your last review?
3. What are your proposed future directions and goals?
4. What are your strengths and weaknesses, and how will you address your weaknesses?
B.3 Accomplishment can take many forms, including high grades or improved grades, fulfilling seminar and proposal requirements, an improved command of the literature, mastering new techniques, presentations at professional meetings, progress toward publishing your research as well as service-oriented activities that benefit SMB, WSU, the scientific community, and the public. If you wish, you may submit a narrative (less than one page) that describes such accomplishments.
C. To be completed by the student’s research advisor in consultation with the student’s committee.

C.1. Overall assessment of research progress toward degree

☐ Excellent  ☐ Satisfactory  ☐ Needs improvement

C.2. Provide an assessment of your student’s research progress and accomplishments for the current review period (or research potential for a first year student). Comment on the student’s strengths and weaknesses and provide specific recommendations or requirements on areas that need improvement. Consider the student’s understanding of the scientific literature, recent proposal defense(s), seminar performance and research benchmarks. Attach additional pages as needed. This assessment should be shared with your student, and then signed and dated by both of you prior to sending the form to Kelly McGovern by the May 16th, 2014 deadline.

Student's signature and Date

Advisor's signature and Date

Print Name

Print Name
D. Evaluation of teaching assistant performance

D.1. To be completed by the graduate student.

Student: _____________________  Course taught: _____________________

TA Supervisor __________________________  Term taught: _____________________

Please provide a self-assessment of your teaching performance. Include an estimate of the amount of time required per week and description of your primary duties as a TA. Describe the student evaluations of your teaching performance.


D.2. To be completed by the TA supervisor.

Please comment on this student’s teaching efforts and competence. This assessment should be shared with the student, and then signed and dated by both the student and instructor prior to sending it to Kelly McGovern by the May 16th, 2014 deadline.


Student's signature and Date  Supervisor’s signature and Date

Print Name  Print Name
Students must write a faculty-mentored research proposal, which can be based on preliminary experimental data and/or published literature. The objective of the paper is to use library resources to develop a proposal that could be completed in approximately two years by two full-time researchers. This mechanism should: 1) challenge the student to think creatively; 2) encourage the student to interpret and integrate concepts and methodologies in the field of Biochemistry, Biophysics, Cell Biology, Genetics, or Microbiology; and 3) demonstrate the ability to use analytical thought and the scientific method in problem solving.

**Suggested Timeline:**
- Beginning of semester: Enroll in MBioS 702 (at least 2 credits, total of 4 credits required to graduate)
- First Month: Student should submit an Abstract and Specific Aims to the non-thesis Master’s committee and schedule a committee meeting to discuss the abstract and aims.
- Third Month: Provide a preliminary draft to your primary advisor.
- Fourth Month: Provide a near-final version of the proposal to the committee for approval to schedule the final examination.
- A copy of final written proposal and the completed cover page are due in the SMB Academic Office in Biotechnology/Life Sciences 102 and to the members of the M.S. committee ten working days before the final examination.
- At least ten working days before the final examination, submit the Non-Thesis Final Oral Scheduling Form to the Graduate School.

**Student’s Name:** ____________________________  **Entering Year:** ______________

**Date of M.S. Program of Study Approval by the Graduate School:** ____________________________

**Title of Proposal:** ____________________________________________________________

**Thesis Committee** (at least two members must be SMB faculty)

Chair: ____________________________  ____________________________  ____________________________

**Date, Time, & Location of Committee Meeting:** ____________________________  ____________________________

**Date, Time, & Location of Proposal Oral Defense:** ____________________________
SCHOOL OF MOLECULAR BIOSCIENCES
APPLICATION FOR GRADUATE STUDENT TRAVEL AWARD

Name: ________________________________________   Date: __________________________

Advisor’s name: _______________________________

Have you received travel support money from the department before? ______________________

If yes, please give date(s) and amount(s) of award: ______________________________________

PURPOSE OF TRAVEL
(please complete 1, 2 or 3)

1. Travel to professional meeting. Please list the name and dates of meeting.

_________________________________________________________________________________

_________________________________________________________________________________

Will you present a paper or a poster? ____________ If yes, title of paper: ________________

_________________________________________________________________________________

Are you the primary author? ____________ If yes, attach a copy of the abstract to this application.

If more than one author, what is your position, e.g. first of three, second of four, etc.? __________

2. Travel to conduct research. Please describe type of research.

_________________________________________________________________________________

_________________________________________________________________________________

_________________________________________________________________________________

3. Other travel, please describe:

_________________________________________________________________________________

_________________________________________________________________________________
ESTIMATED EXPENSES

Amount requested: $ _________________ (not to exceed $350.00)

Proposed dates of travel, from: ________________ to ________________

Destination: ______________________________________________________________________

Type of transportation: ______________________________________________________________________
  If auto, total miles.
  If air, cite source of amount quoted or attach quote.

Is support being requested for registration? __________ If so, total amount: ________________

Is support being requested for lodgings/meals? __________ If so, total amount: ________________
  (maximum per diem x no. of days attending)

What other sources of support have you applied for? and accepted? __________________________

_________________________________________________________________________________

What is the total amount of contribution by the thesis advisor? _________________

Advisor’s signature: _______________________

OTHER INFORMATION

Comments: Please elaborate how your travel will benefit you, the lab, the department or WSU. Please attach a copy of your abstract, if any.
Have you attended a meeting before?  

Yes _______  

No _______

If yes, please indicate the following for each meeting attended: Name of meeting, date of meeting, title of paper presented and authors.

Please indicate your previous publications and abstracts, if any:

Return to Kelly McGovern – Biotechnology/Life Sciences 102, zip 7520
SCHOOL OF MOLECULAR BIOSCIENCES
GRADUATE STUDENT TRAVEL AUTHORIZATION

Students are required to file a travel authorization to be reimbursed and ensure eligibility for accident insurance, etc. Travel authorization for students require approval from the thesis advisor. Authorization for graduate recruiting require approval of the Associate Director or the Chair of the Graduate Recruiting Committee.

Name: ____________________________________  WSU ID: _______________

Home address:  ____________________________________________________________

________________________________________________________________________

Purpose of trip, include conference name: ______________________________________

________________________________________________________________________

Destination:  ______________________________________________________________

City  State  Country

Depart date:  ______________________________  Time  _________________________

Return date:  ______________________________  Time  _________________________

Comments: Include 3rd party payment or travel award, website of conference, if you are asking SMB to pay your conference registration fee, and if you are requesting a rental car or mileage if you are driving.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Approval signature by your Thesis Advisor: ____________________________________

Graduate Recruiting: approval signature by Associate Director or the Chair of the Graduate Recruiting Committee: ____________________________________

Budget/Project:  ______________________________

Your Signature: ______________________________  Date: ______________

Return to: Kelly McGovern - Biotechnology/Life Sciences 102, zip 7520
GRADUATE SCHOOL FORMS

Current forms are available, in PDF or WORD format, on the WSU Graduate School web page: http://gradschool.wsu.edu/Forms/

Masters Degrees
  - Deadlines and Procedures
  - Program for Master’s Degree
  - Application for Master’s Degree
  - Final Exam Scheduling Form (thesis and non-thesis)
  - Final Thesis/Dissertation Acceptance Checklist
  - Program Change
  - Committee Change

Doctoral Degree
  - Deadlines and Procedures
  - Program for Doctoral Degree
  - Preliminary Examination Scheduling Form
  - Application for Doctoral Degree
  - Dissertation & Thesis Guidelines
  - Digital Dissertations & Thesis Submission
  - Dissertation & Thesis Formatting
  - Bookbinding Vendors
  - Final Exam Scheduling Form
  - Final Thesis/Dissertation Acceptance Checklist
  - Program Change
  - Committee Change