



MCDB&G

Molecular, Cellular, Developmental Biology and Genetics

Graduate Program Handbook – 2010-11

THE UNIVERSITY OF MINNESOTA

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The information in this handbook and other University catalogs, publications, or announcements is subject to change without notice. University offices can provide current information about possible changes. The information in this handbook is available in other formats upon request.

WELCOME TO THE GRADUATE PROGRAM IN MOLECULAR, CELLULAR, DEVELOPMENTAL BIOLOGY AND GENETICS.

This handbook is designed to provide you with important information regarding course requirements, registration details, preliminary written and oral examinations, degree requirements, and health and dental insurance.

While graduate programs are officially distinct from departments, in practice programs rely on departments for financial assistance, office staffing, and space. The MCDB&G program works closely with the Department of Genetics, Cell Biology and Development (GCD).

Two very important people you need to know are Sue Knoblauch and Tami Jauert. Sue is the Student Personnel Coordinator responsible for general advising, including registration, graduate school policy and procedure. Sue's office is 5-116 MCB. You can find her there or contact her via email at smk@umn.edu or by phone at 612-624-7470. Tami is the Graduate Student Human Resource and Payroll Coordinator and she knows about all things financial including insurance and stipends; her contact information via email is jauer002@umn.edu or by phone at 612-624-3401.

Advising can be obtained from your adviser, from the Director of Graduate Studies (DGS), Kathleen Conklin, 5-128 MCB, telephone; 612-626-0445; email: conkl001@umn.edu, or from the co-DGS, Duncan Clarke, 6-128 MCB, telephone 612-624-3442 email: clark140@umn.edu. If you need additional support for professional or personal issues, your adviser, DGS and/or Sue can help you find the appropriate resources or you can contact University-based offices directly. These include the Graduate School Student Services office (612-625-3490, 316 Johnston Hall, http://www.grad.umn.edu/current_students/) and the International Student and Scholar Services (612- 626-7100, 190 Hubert H. Humphrey Center (<http://www.iss.umn.edu/>)).

JD/PhD. and JD/M.S. Joint Program

Students will be advised by the DGS in MCDB&G and Carol Rachac in the Joint Degree office, crachac@umn.edu, 612-625-3356 (<http://www.jointdegree.umn.edu/>).

MD/PhD. Program

Students will be advised by the DGS in MCDB&G and Susan Shurson in the MD/PhD. office, shurs002@umn.edu, 612-625-3680 (<http://www.med.umn.edu/mdPhD/>)

BASIC INFORMATION

As a member of the MCDB&G graduate program, you are expected to follow the Student Academic Conduct Code (Appendix A) and specifically to:

- Actively pursue thesis research with adequate and timely progress (see Note below).
- Maintain a cumulative GPA of at least 2.8.
- Meet course requirements.
- Give a student research seminar once a year.
- Meet annually with your committee.
- Attend a student research seminar series and one regular departmental seminar series.
- Attend a regularly scheduled journal club.
- Fulfill TA requirements (2 semesters for PhD, 1 semester for MD/PhD, MS and JD/PhD students).
- Attend and present a poster at the annual MCDB&G Fall retreat.
- Participate in MCSB recruiting activities.
- Maintain active status with the Grad School by registering every Fall and Spring.

Note: In most cases at least 40 hours of thesis research per week, excluding coursework, will be required to make adequate progress towards the PhD degree.

YEAR-BY-YEAR INFORMATION REGARDING REGISTRATION, TA REQUIREMENTS, PRELIMINARY ORAL AND WRITTEN EXAMINATIONS, THESIS PREPARATION AND GRADUATION

Total Credit requirements for Ph.D.

[1] 30 or more Total Course Credits – these include MCDG 8920 (Itasca) and MCDG 8900 (Student Seminar). 20 of your Total Credits must be graded A-F and you must complete the Required Core Courses, graded A-F, as well as Elective Courses (see below).

[2] 24 Thesis Credits.

REQUIRED CORE COURSES

To complete a Ph.D. in the MCDB&G program you must complete the Required Core Courses graded A-F. These are BioC 8001 and BioC 8002. In the fall of year two, you must also take GCD 8900, a journal club-style course that complements the GCD Thursday seminar series.

ELECTIVE COURSES

Elective Courses make up the remainder of your Total Credits so that you achieve a minimum of 30 Total Credits. You need to take enough Elective Courses graded A-F to reach the 20 credit minimum of A-F graded courses within the 30 Total Credits.

The recommended Elective Courses are:

| | |
|---------------|--|
| GCD 8151 | Cell Structure and Function |
| GCD 8131 | Advanced Genetics |
| GCD 8171 | Literature Analysis (note: 2 credits) |
| GCD/BioC 8213 | Selected Topics in Molecular Biology (4 credits) |
| GCD 8181 | Stem Cell Biology (3 credits) |
| PubH 6450 | Biostatistics I (4 credits) |
| Grad 8101 | Teaching in Higher Education (3 credits) - Preparing Future Faculty (http://www1.umn.edu/ohr/teachlearn/pff/) |
| GCD 8008 | Mammalian Gene Transfer and Expression (2 credits) |
| GCD 8073 | Adv. Human Genetics (3 credits) |
| BIOC 8216 | Signal Transduction and Gene Expression (4 credits) |
| MICA 8003 | Immunity and Immunopathology (4 credits) |
| MICA 8004 | Cellular and Cancer Biology (4 credits) |
| NSC 8211 | Developmental Neurobiology (3 credits) |
| Grad 8102 | Practicum for Future Faculty (3 credits) Preparing Future Faculty (http://www1.umn.edu/ohr/teachlearn/pff/)xx |

Other Elective Courses available are listed in Appendix B, but you must talk with your adviser AND gain approval from your DGS before you can register for these courses.

YEAR ONE:

During your first year, you took the Required Core Courses (BioC 8001 and BioC 8002) and some Elective Courses. It is important to make sure that you are on track for the Total Course Credits required for the Ph.D. You must also pay attention to the ratio of graded (i.e. A-F) vs. non-graded (i.e. S/N) courses.

A typical year 1 registration follows:

FALL

| | | | |
|-----------|--|---|-----|
| BioC 8001 | Biochemistry: Structure, Catalysis, and Metabolism | 3 | A-F |
| BioC 8002 | Molecular Biology and Regulation of Biological Processes | 3 | A-F |
| GCD 8151 | Cell Structure and Function | 3 | A-F |
| MCDG 8920 | Itasca | 2 | S/N |
| MCDG 8900 | Student seminar | 1 | S/N |

SPRING

| | | | |
|-----------|---|---|-----|
| GCD 8131 | Advanced Genetics | 3 | A-F |
| GCD 8161 | Advanced Developmental Biology | 3 | A-F |
| BioC 8401 | Ethics, Public Policy and Careers in Mol. and Cell. Biology | 1 | S/N |
| MCDG 8900 | Student seminar | 1 | S/N |

YEAR TWO

Register between 6 and 14 credits during fall and spring semester. Do not register for summer semester. You need to register for 6 credits to maintain active status but should not

register for more than 14 credits. If you do register for more than 14 credits, you will be responsible for the excess tuition charge.

In the Fall semester of Year 2, MCDB&G students are required to take GCD 8900, a journal club-style course that complements the GCD Thursday seminar series. Many students will also take a highly recommended literature-based class, either BioC/GCD 8213 or GCD 8171.

A typical year 2 registration follows:

FALL

GCD 8900 (GCD seminar journal club)
BioC/GCD 8213 or GCD 8171
One or two Elective Courses (see above)
MCDG 8900 (student seminar)
MCDG 8950 (Teaching Practicum - register for this if you have a TA assignment)
MCDG 8666 (Pre-thesis credits - use only if you need to make the 6 credit minimum)

SPRING

One or two Elective Courses (see above)
MCDG 8900 (student seminar)
MCDG 8950 (Teaching Practicum - register for this if you have a TA assignment)
MCDG 8666 (Pre-thesis credits - use only if you need to make the 6 credit minimum)

If you plan to take both Preparing Future Faculty (PFF) courses, you need to take the first course (Grad 8101) in fall or spring of your second year and the second course (Grad 8102) fall or spring of your third year.

TA Assignments:

During Year Two you will also complete the first of your two required TA assignments. International students must take the SETTA test before they can accept a TA assignment.

Preliminary Written/Oral Examination and Committee selection

During Fall semester, a meeting will be held for second year students to review the requirements for your Preliminary Written and Oral examinations and tips on how to select your committee. See page 8 for due dates and specifics. **You need to complete (and pass) your Preliminary Written and Oral examinations by the end of the summer of your second year.**

A list of faculty and their departmental and graduate program affiliations is included in Appendix C.

YEAR THREE

Once you have passed your Preliminary Written and Oral examinations, you will register for a total of 24 thesis credits. Normally, students register for 10 credits during one semester of their

third year and 14 credits in the second semester of their third year. You can take an additional Elective Course during the semester that you register for 10 thesis credits if needed.

FALL AND SPRING

- MCDG 8888 (register for 10-14 thesis credits; you need a total of 24 for graduation).
- One Elective Course during the 10-thesis credit semester (Remember - do not exceed 14 credits per semester).
- Complete 2nd and final TA assignment during Fall or Spring Semester.
- In the Spring, file the Graduate School Thesis Proposal Form.

YEAR FOUR (AND BEYOND)

You must register for 1 credit of MCDBG 8444 for Fall and Spring semester until completion of your degree. Some of you may have to register for summer session. If you need to do this, Sue will notify you.

Doctoral Dissertation Nominations are due to DGS In February. You will get an email from Sue when these are due. Students within 12-18 months of completion are eligible to apply.

GRADUATION YEAR

- Prepare for your final oral exam.
- Forms to file: (available at: http://www.grad.umn.edu/current_students/forms/doctoral.html):
- Obtain the Graduation packet from the Graduate School.
- Complete the Thesis Reviewers Report from the Graduation packet.
- Complete the Graduate School Final Oral Exam Scheduling Form online.
- This is due at least one week before Final Oral exam.
- Submit your thesis to readers at least 2 weeks before final exam.
- Submit a copy of your thesis to the Student Personnel Coordinator (Sue).

COMMITTEE SELECTION AND PRELIMINARY WRITTEN AND ORAL EXAMINATIONS

1. TIMELINE

During your second year, you will select your preliminary and thesis examination committees and complete your preliminary written and oral examinations. Due dates are:

- December 17 Submit your list of candidate committee members to the DGS.
- January 10 Submit the Specific Aims for your Preliminary Written examination and the outline of your thesis research.
- February 25 Preliminary Written exam due.
- March 11 Complete the Degree Program Form.
- As soon as your Preliminary Written exam is approved, complete the Preliminary Oral Exam Scheduling Form online.
- You must complete (pass) your Preliminary Oral and Written Exams before the first week of Year 3 Fall Semester.

2. EXAMINATION COMMITTEE

Choosing a Committee

A committee approval form will be given out at the October second year student meeting. This form is due to the DGS on December 18. Consult with your adviser about which faculty would be appropriate choices for committee members. Once you and your adviser have agreed on your selections, you need to contact potential committee members to check their availability and willingness to serve on your committee. You need to list five potential committee members and one alternate. See below for requirements.

FYI - Although the graduate school states that a 4-member committee is necessary, MCDB&G requires a 5-member committee.

Preliminary Written/Oral Examination committee

- Your adviser is not a member of the 5-member committee.
- Three members must be a MCDB&G faculty member
- Two members must be graduate faculty members in another graduate program
- Two of the five members must have their primary academic appointment in a department other than that in which the student's adviser is based, i.e. GCD, BMBB.

Thesis committee

Students usually drop one committee member from the Preliminary Written/Oral Examination committee so that the adviser can be added to the committee. However, you can retain all members of your written/oral committee and add your adviser and therefore have a six-member thesis committee. You can also change committee member(s) if needed.

- Your adviser **MUST** be on the committee.
- Two members must be an MCDB&G faculty member
- Two members must be graduate faculty members in another graduate program
- One of the four members must have their primary academic appointment in a department other than that in which the student's adviser is based, i.e. GCD, BMBB.

For a list of the faculty and their appointment level and departments please see Appendix C.

PRELIMINARY WRITTEN AND ORAL EXAMINATIONS

Preliminary Written Examination

OBJECTIVE: The goal of the Preliminary Written Examination is to test your ability to independently (a) develop a novel hypothesis that addresses a significant problem, (b) develop a set of well-crafted experiments to test your hypothesis (c) interpret data obtained (d) anticipate difficulties and devise alternative strategies and (e) draw conclusions based on predicted experimental outcomes. **NOTE:** We understand that in the "real world" you would consult with your colleagues to refine your ideas and hypotheses. However, the goal of the written prelim is to evaluate your ability to do this on your own..

Your Preliminary Written Examination should propose a novel hypothesis that addresses a previously unanswered question of biological significance and that describes a research plan that tests your hypothesis. The scope should be sufficiently narrow that it represents a 3-4 year project that can be completed by an individual, not a broad NIH grant to support 5-10 people. The proposed topic should be of significant importance such that the anticipated results would be suitable for publication in a leading journal in the field. You are encouraged to consider a wide range of techniques to evaluate the validity of your hypothesis.

The proposal must be of your own creation. ***It cannot be based on your thesis research or on a topic you have worked on or written about previously as an undergraduate or graduate student.*** You may not use an existing research grant application (written by your adviser, yourself, or others) or any ongoing project in the lab as the basis for the proposal. You may not let anyone review/read your proposal prior to submission. You may seek help with your grammar and writing style at the Center for Writing, 15 Nicholson Hall or 9 Appleby Hall, <http://writing.umn.edu/sws/>. E-mail: writing@umn.edu, Nicholson appointments and information: (612) 625-1893, Appleby walk-in center: (612) 626-1328.

January 10:, Submit the following documents to Sue Knoblauch for the initial review of your Preliminary Written Examination topic:

1. Your proposal Title.
2. The Specific Aims of your proposal (one page maximum).
3. An Abstract and Specific Aims of your thesis project (one page maximum).
4. A summary (1/2 page maximum) of the difference between your thesis project and your Written Prelim topic (see Note below).

Use 11 pt Arial font; 1 inch margins all around and submit the documents as a .pdf file to avoid problems with Mac/PC conversion. These documents will be reviewed by the Student Review Committee that will either approve or disapprove the topic. The major criteria for approval will be that the topic falls within the areas represented by the MCDB&G faculty and that it is clearly distinct from ongoing or past research from your lab, your thesis project and other topics you have worked on either in a laboratory or as a written research project. Reasons for disapproval include a topic that is too close to your thesis research in topic or approach or because the proposed research is either not significant or does not constitute a coherent set of experiments that addresses the hypothesis (see Note below).

Note: Each year several Prelim topics are rejected due to overlap between the thesis project and proposal topic. If you find the need to start your summary with "Although....." your topics are likely too close. For example, "Although both my proposed preliminary examination topic and my dissertation research involve evaluating the impact of a viral

agent on a protein's localization, there are important differences between the two studies.....". One goal of the prelim is to encourage students to think deeply about a topic that is well outside of their current area. Another recurring problem is a proposal that is too closely modeled on a published work – for example repeating a prior study performed with a signal transduction protein, simply by choosing a different protein from the same pathway.

February 25: Proposal Due to Sue Knoblauch.

- As above, use 11 pt Arial font, double-spaced, with 1-inch margins all around and submit the proposal as a .pdf file.
- The total length of the proposal is limited to 15 double-spaced pages (excluding references). The limit includes figures.

PROPOSAL FORMAT: The following format should be used: (Note: the page lengths in parentheses are meant as rough guidelines.)

- Specific Aims, including statement of hypothesis (1 page)
 - BE SURE TO INCLUDE A CLEAR STATEMENT REGARDING THE SIGNIFICANCE OF THE PROPOSED RESEARCH.
- Background and Significance (4-5 pages)
 - This section should include a critical review of relevant literature leading to your hypothesis.
- Research Design and Methods (7-9 pages)
 - For each Specific Aim include:
 - Experimental Design
 - Anticipated Results
 - Potential Problems and Alternative Strategies
- Conclusions and Future Directions (1 page)
- References

Grading of the Written Prelim Exam

The written preliminary examination will be graded by three members of your Preliminary Written Examination Committee.

There are three possible outcomes:

- Pass: (Requires that 2/3 of the committee votes pass). The proposal addresses a significant problem, includes a well-defined hypothesis and proposes clearly-presented experiments, alternative strategies and experimental interpretations. Ready to defend.
- Pass with Revisions: (Requires that 2/3 of the committee votes pass with revisions). The proposal must be revised to address the committee's critiques. Typical deficiencies include insufficient consideration of alternative methods, alternative outcomes, or limited interpretation of the possible experimental outcomes.
- Fail: (Requires that 2/3 of the committee votes fail). The proposal contains fundamental flaws or is so poorly written that the committee cannot adequately evaluate the proposal. Typical deficiencies include the lack of a hypothesis, flawed logic, a series of experiments that would only marginally increase knowledge in the subject area, a series of aims where later experiments are only valid if particular outcomes are gained from the earlier experiments. You will be given the opportunity to revise the proposal.

Outcomes of initial review:

- Pass:

- If the outcome is pass you can schedule your Preliminary Oral Examination and inform Sue Knoblauch (smk@umn.edu) as soon as you set the date. NOTE: you will need to pass your oral prelim before the first week of Year 3 Fall Semester.
- Pass with reservations or Fail:
 - You need to schedule individual meetings with each of your Committee members that graded your exam to discuss your plan for addressing their concerns and suggestions. You will then revise the proposal and resubmit it within the time outlined by the examining committee. Include a one-page explanation (1 inch margins, double-spaced; 11 pt Arial) of how you revised the proposal to respond to the reviewer's critiques. The original reviewers will review the revised proposal. The possible outcomes are Pass or Fail, according to the criteria outlined above.
 - If revised or resubmitted proposals are also unacceptable (i.e. less than 2/3 of the committee votes pass), you will have failed the exam. In this case, the Student Review Committee will determine the final action based on a review of past class performance and comments from the faculty. The Student Review Committee may:
 - Offer the student the opportunity to work towards an M.S. Degree
 - Terminate the student from the program
 - In rare cases, arrange for the student to take a third Written Preliminary Examination.

Prior to the Preliminary Oral Examination, the original proposal, revised proposal (if a revision was required) and copies of the reviewers' comments should be sent to all committee members.

Preliminary Oral Examination

The Oral Preliminary Examination must be taken before the first week of Year 3 Fall Semester. All five committee members plus the adviser need to be present for the exam. The adviser is to be a silent observer, not an active participant.

You must schedule your Preliminary Oral Examination with **the Graduate School at least one week in advance using the Doctoral Prelim Oral Exam Scheduling form found at http://www.grad.umn.edu/current_students/forms/doctoral.html**. This generates the examination report, which will be sent to the committee chair. **The student is responsible to get the examination report back to the Graduate School within one day after the exam.**

Also, notify Sue Knoblauch (smk@umn.edu) of your Exam date. She will provide all of your committee members a copy of your proposal and the reviews.

Format of the Preliminary Oral Examination

The examining committee chair will excuse you before the exam starts and committee members will hold a brief discussion regarding your overall performance to date in the program (coursework, progress in lab) as well as your performance on the written prelim exam.

The Preliminary Oral examination is intended to be open-ended with the goal of examining your knowledge and problem solving skills, particularly in areas related to your proposal, to your own research area and to course work you have completed. Members of the examining committee representing the minor or supporting program should evaluate your breadth of knowledge. You should prepare two presentations for the exam: (1) A brief presentation of your written proposal. We suggest that you prepare a presentation that would take **NO MORE THAN 20 min**

(uninterrupted); this would ideally constitute at most 10 slides/overheads. It is unlikely that you will complete this presentation because your committee will frequently interrupt you with questions - the major point of the exam. You should be prepared to use the whiteboard to diagram and explain your proposed research. (2) A brief outline of your thesis research – this will be discussed near the end of the exam. For this portion of the exam, be prepared to present your thesis project as a “chalk talk” in 5- 10 minutes. Your committee will likely have questions about your goals and approaches. **DO NOT** prepare a formal presentation with slides.

A typical time-line for a preliminary oral examination is as follows. You will usually be given about 5 min to begin presenting your proposed project before questioning starts. The portion of the examination devoted to your proposal should be approximately 45 min to 1 hour, including questions, followed by ~45 min of general questions and a final 20 min on your thesis research. These time limits are a general guide and your examiners will determine the timing.

Upon completion of the exam you will be excused and your committee members will vote by secret ballot followed by a discussion and then a final vote. Possible results are pass, pass with reservations, or fail. Procedures for lifting reservations must be specified by the committee members. These will be clearly explained to the student at the exam and a written summary of the requirements to lift the reservations will be sent to the student, the advisor and DGS within 2 days of the exam. If the result is fail, **the prelim oral exam may be taken a second time only with unanimous approval (vote) of the committee, and the same exam committee must conduct the exam.**

THESIS AND FINAL ORAL EXAM

Obtain a Graduation Packet at:

http://www.grad.umn.edu/current_students/forms/doctoral.html

- The site noted above is a WEALTH of information including directions on the required content and format of your thesis. Please read it carefully.
- Once completed and approved by your adviser, distribute your thesis to your Readers (one committee member in MCDB&G and one outside the program). You need to give your readers a minimum of two weeks to read the thesis. Your readers determine whether the thesis is acceptable for defense. If acceptable, the readers (and your adviser) will sign the Thesis Reviewer's Report form (found in the Graduation Packet) which needs to be submitted to the Graduate School before the defense date can be set officially. Signing the Thesis Reviewer's Report form indicates that the reader has judged that the thesis is ready for oral defense - and only that. The reviewer may have reservations and after the oral examination may vote to fail the candidate for the Ph.D. degree. However, this is rare and the annual student evaluations are designed to guard against such a possibility. **If the thesis is judged to be unacceptable for defense, specific reasons will be communicated to the student in writing and the thesis will need to be revised.**
- The Thesis Reviewer's Report form needs to be submitted to the Graduate School at least one week before the final oral exam.
- After the Thesis Reviewer's Report form has been submitted, schedule the final oral exam at least one week in advance at:
- http://www.grad.umn.edu/current_students/forms/doctoral.html
- The Final Exam Report form will be sent to the committee chair.
- Submit the Final Exam Report by the last working day of the intended month of graduation.

This Final Examination is primarily the thesis defense, although the questions and discussion may cover related areas as well. The first portion of all final oral examinations is a one-hour

seminar given by the student covering the thesis research. This seminar must be publicly announced and all interested faculty and students are invited. Following a brief period of questions from the audience, the second portion of the examination will consist of additional questions to the candidate from the members of the examination committee. The second section of the examination is not open to the public.

3. FORMS, FORMS, FORMS

Most of these forms (and other important information) can be found at:

http://www.grad.umn.edu/current_students/forms/doctoral.html

Degree Program Form

- Find the form at http://www.grad.umn.edu/current_students/forms/doctoral.html
- File in the spring of your second year after your committee has been approved by the DGS.
- A sample form will be sent to you by Sue

Thesis Proposal Form

- File no later than one semester after passing your Oral Preliminary examination.
- Obtain form at http://www.grad.umn.edu/current_students/forms/doctoral.html

Dissertation Submission

You must submit an electronic version of your thesis. For more information, refer to the copy of "Formatting Guidelines for the Doctoral Dissertation" in your graduation packet. **The program requires a bound copy of the thesis. Submit to Sue Knoblauch.**

Award of the Degree

The Graduate School Application for Degree form must be submitted by the **first working day of the month** of intended graduation. This form can be found in the graduation packet. If all requirements are completed by the last working day of the month, the degree will be awarded as of that day and recorded on both the transcript and diploma. If all requirements are not completed, graduation will be delayed at least until the next month. Diplomas will be prepared and sent to students as soon as possible after completion of the degree requirements (3-4 months). Information is available on the Graduate School web site at:

http://www.grad.umn.edu/current_students/forms/documents/GS21.pdf

Commencement

There are two Commencement Ceremonies each year. January through June graduates may attend the May ceremony; July through December graduates may attend the December ceremony. If you wish to have your name appear in the Commencement Program and attend the ceremony, you must complete the Commencement attendance form and have it signed by your adviser and the DGS by the deadlines. This form can be found in the graduation packet. Information is available on the Graduate School web site at:

http://www.grad.umn.edu/current_students/degree_completion/commencement/index.html.

4. OTHER ESSENTIAL INFORMATION

Student Research Seminar

All MCDB&G students are required to attend the MCDB&G Student Seminar each week. If you do not attend a minimum of 90% of the Student Seminars, you will receive an “N” grade for this course. There will be a sign in sheet at the Student Seminar which you must complete. Second to fourth year students are required to present a Student Research Seminar each year. The aim of this seminar is to give each student the opportunity to present a formal seminar on your research and also to give your committee the opportunity to assess your progress towards completion of the Ph.D. degree. The annual student evaluation form should be filled out after the committee meeting (see Annual Committee Meeting and Student Evaluation).

Annual Committee Meeting and Student Evaluation

There are two components to Student Evaluation, an Annual Committee Meeting and evaluation each semester by the Student Review Committee:

(1) Student Review Committee – at the end of each semester this committee meets to evaluate your student file, including your transcript, rotation reports, TA reports and Annual Committee Meeting evaluation. If deficiencies are detected, you will first be called to meet with your DGS and if necessary the Student Review Committee. If your GPA falls below 2.8 at the end of a semester, you will be called to meet with your DGS. If your GPA remains below 2.8 for a second semester, you will be called to meet with the Student Review Committee – in consultation with the DGS you may be dismissed from the program, or a plan may be formulated give you the chance to improve your GPA and continue in the program. If your TA report does not give you a passing grade, then you will have to do an additional TA. If you do not attend a minimum of 90% of the Student Seminars, you will receive an “N” grade for this course.

(2) Annual Committee Meeting - Each student is required to have a meeting at least once a year with your Thesis Committee, including your adviser, to discuss academic and research progress and plans. The Annual Committee Meetings commence once your Thesis Advisory Committee has been chosen. It is strongly recommended that this meeting be held immediately after your yearly student seminar. The seminar room is reserved from 1:00 to 1:30 pm on Mondays to facilitate scheduling of this meeting. An evaluation form will be sent to your adviser after the seminar; this will be filled out, emailed to committee members for their approval, then signed by both adviser and student and submitted to the DGS for review and inclusion in the student's file. If problems are detected in academic or research progress, the student or any committee member may call for additional Thesis Advisory Committee meetings and/or Student Review Committee meetings.

Preparing Future Faculty (PFF) – GRAD 8101 and GRAD 8102

Preparing Future Faculty (PFF) welcomes graduate and postdoctoral participants from all disciplines. PFF helps participants: acquire information about the teaching and learning process and the faculty role at a variety of institutions of higher education, gain a realistic perspective on the skills required for success as a faculty member, examine their fit with a teaching career in higher education, work with a faculty mentor in a teaching opportunity at a local college or university, demonstrate, document, and reflect on their teaching skills, and market themselves for faculty or other professional positions. To receive a letter of recognition and certificate of program participation from the Graduate School, participants must complete Grad 8101—Teaching in Higher Education and Grad 8102—Practicum for Future Faculty. For information on program enrollment, contact PFF at 5-3811 or pff@umn.edu, or visit:

<http://www1.umn.edu/ohr/teachlearn/graduate/pff/index.html>

If you plan to take both PFF courses, you need to take the first course (Grad 8101) in fall or spring of your second year and the second course (Grad 8102) fall or spring of your third year.

Time Limit for Earning Degree

All requirements for the Doctoral degree must be completed by five years from the end of the fall or spring term following the term in which you pass the preliminary oral examination. For example, if you pass the preliminary oral examination during spring term 2010, all requirements for the degree must be completed by the end of fall term 2015. There are no provisions for a "leave of absence" or other means of suspending candidacy.

At the end of the fourth year following the preliminary oral examination, the Graduate School will notify you, your adviser, and the DGS that there is one year remaining in which to complete all requirements for the degree. If you are unable to complete the degree within the five-year limit, you may petition the Graduate School for an extension. In no case will the Graduate School approve extensions past eight years. For more information see:

http://www.grad.umn.edu/current_students/forms/g15.pdf

Leave of Absence

If a leave of absence is necessary, you need to notify the DGS, the Student Personnel Coordinator (Sue) and Student Payroll staff member (Tami). To keep an active status with the Graduate School during a leave, you will need to register for Grad 999 each Fall and Spring semester. Grad 999 is a zero-credit, zero-fee, non-graded registration option.

Teaching Requirements

All Ph.D. students will teach two semesters, not to include the first and last years. The teaching requirement is intended to ensure that all students in the program have, as part of their graduate training, experience as instructors at the university level. You can express your preference for particular teaching assignments, although we may not be able to accommodate your choices. Credit for teaching is obtained by registering for 1 credit under the designator MCDG 8950, Teaching Practicum.

- You should meet with the instructor of your assigned course before the course begins to discuss duties and expectations. Students will typically be expected to present at least one lecture or lab session.

TA duties can include:

- TAs for lecture courses usually hold weekly office hours to answer questions about material presented in lecture. You may also lead review session(s). TAs for laboratory courses help supervise students and answer questions during laboratory exercises. You should also be available to answer student questions after class, although typically you do not hold office hours.
- TAs for lecture courses may be asked to assist the instructor in either preparing, critiquing or reviewing in-class or take home examinations. Laboratory course TAs will typically assist the instructor in reviewing laboratory notebooks and in the design of one or more written assignments. The course instructor should provide a detailed examination or answer key for the TA to use as a guide. The instructor should also be available to provide guidance when the TA has questions about grading an answer and should review the grading to ensure that student work is being evaluated appropriately.
- TAs may be asked to assist the instructor in preparing some materials for the course, such as copying handouts, on a limited basis (such as when a handout is unexpectedly

needed at the last minute). However, it should be noted that **TAs are not responsible for course copying**. The departmental offices have all of the necessary resources for course copying.

- Instructors will be sent an evaluation form at the end of the semester that will be sent to you and placed in your file.

SETTA test

All nonnative English-speaking students must demonstrate proficiency in spoken English appropriate to the demands of their teaching assistantship. The SETTA test MUST be taken in the Spring semester of the first year. For further detailed information see:

<http://www1.umn.edu/ohr/teachlearn/graduate/itap/learnaboutthesetta/index.html>

Transfer Credits

Students may request from the program and Graduate School transfer of graduate level course credits. Generally, MCDB&G will only allow transfer of 4 credits towards the degree but may allow more under the discretion of the DGS. The transfer courses will be included on the degree program form. Official transcripts of the graded work must be attached to the degree program form, unless they have already been included in the student's Graduate School file. Transfer of graduate credit is not allowed for courses taken before the awarding of a baccalaureate degree. For additional regulations regarding course credits that can be transferred see:

<http://www.catalogs.umn.edu/grad/gen/Ph.D.html>.

MASTER'S AND COMBINED DEGREE PROGRAMS

I. MD/PH.D. PROGRAM

The MD/PhD Program combines coursework and biomedical research culminating in a dissertation and PhD degree and clinical training resulting in an MD degree. The goal of the MD/PhD Program is to link biomedical sciences and clinical practice to provide a basis for optimal research and patient care. MD/PhD students who have a strong, fundamental interest in the analysis of disease at the molecular and genetic level and who anticipate a career as a clinical or basic biomedical research are encouraged to pursue their PhD training with faculty in the Graduate Program in Molecular, Cellular, Developmental Biology and Genetics (MCDB&G). When students enter the MCDB&G program they are considered 2nd year students. The training is completed in the following sequence:

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

Phase 2 (years 3-6): The student becomes a member of the MCDB&G program, functioning in every respect identically to those MCDB&G students admitted in the PhD Program. This includes attending MCDB&G retreats, journal clubs, laboratory meetings, research reviews, seminars, national and international meetings, and authoring original scientific papers. MD/PhD students are also eligible to hold elected office within the MCDB&G student governance system and represent the MCDB&G Program on University or College committees. Like all graduate

students, MD/PhD students are encouraged to apply for private research fellowships (e.g., American Heart Association) and Graduate School Doctoral Dissertation Fellowships. During Phase 2, MD/PhD students are financially supported through a combination of fellowships, training grants and individual research grants. MD/PhD students are paid the stipend and have benefits identical to those MCDB&G students in the PhD Program. During Phase 2, the MD/PhD program requires the student to commit 4h/week over a 36-week period to clinic time with a physician scientist. Fulfillment of the PhD component of the MD/PhD Program with a degree in MCDB&G requires completion of specialty coursework, dissertation research culminating in the writing of a thesis, and satisfactory completion of both the Preliminary and Final Exams.

Coursework

The major in MCDB&G requires 20 credits from A-F graded classes. Because pre-clinical course work is not graded A-F, there is a method to convert the pre-clinical non-graded scores to A-F grades. Up to 12 credits from pre-clinical course work can be transferred if those classes are deemed appropriate. Therefore, MD/PhD students must take a minimum of 8 credits in A-F graded MCDB&G classes. This coursework should be related to your emphasis within Molecular, Cellular, Developmental Biology and Genetics. In the 1st year of Phase 2 (year 3 of the MD/PhD program), students will take 2 or 3 classes of MCDB&G coursework. MD/PhD students should plan their MCDB&G coursework in consultation with their advisor and the DGS upon entering the program.

Preliminary Exam & TA

Based on the student's background and after consultation with the adviser and DGS, the student will complete the requirements for the Written and Oral Preliminary Exam in the spring of either year 1 or year 2 of Phase 2. Following satisfactory completion of the Preliminary Exam, students will continue with full-time research, typically 3-4 years. During this time MD/PhD students will serve as a teaching assistant (TA) in an MCDB&G course for 1 semester during Phase 2. The TA assignment is determined by the DGS of MCDB&G and may be either a laboratory- or lecture-based experience.

Final Oral Exam

At the end of Phase 2, students will complete their Final Oral Exam with Thesis Defense and be granted their PhD (see Page 11).

Phase 3 (year 7): Clinical rotations and MD. Approximately 64 weeks of clinical rotations conclude the Combined Degree Program, at the end of which the MD degree is awarded. In Phase 3, or earlier, students link with a clinical-discipline advisor who is responsible for keeping them in touch with clinical medicine and research.

MD/PhD Internet Site:

<http://www.med.umn.edu/mdphd/>

II. JD/M.S. OR JD/PH.D. PROGRAM

<http://www.jointdegree.umn.edu/>

The Ph.D. and M.S. requirements for the JD/PhD and JD/MS are the same as those for students pursuing only the Ph.D., with the important exception that some courses can be "cross counted" for credit in both programs. The most current information for eligible courses is found at:

http://www.jointdegree.umn.edu/degree_programs/mcdbq_phd/cross

For Ph.D. students, the written and oral prelim exams are generally taken late in spring semester of the first year in the Ph.D. portion of the program.

III. MASTER'S (M.S.) DEGREE

http://www.grad.umn.edu/current_students/forms/masters.html

The MCDB&G program does not admit students with the intention of obtaining a Master's degree. There are reasons, however, that students do choose the M.S. option after entering the Ph.D. program. In this case, you can choose between a Plan A (with thesis) and a Plan B (non-thesis) degree. Most students opt for the Plan B. In either case, you will need a minimum GPA of 2.8 to graduate.

TYPICAL MASTER'S DEGREE COURSE WORK

- **Years One and Two:** The course work plan varies depending on when you opt to switch to the M.S. program. Typically, courses taken during Years One and Two are the same as those taken by all other students who entered the MCSB Ph.D. program (see page 5). After the decision to switch to an M.S. track, you should meet with the DGS and with your adviser to make sure you have the correct distribution of credits to graduate with an M.S.

Teaching experiences

All M.S. students will TA one semester, not to include the first and last years. Credit for teaching experience is obtained through registration for 1 credit under the designator MCDG 8950, Teaching Practicum.

M.S. Degree Examining Committee

Consists of three faculty members:

- Two members (one of whom is the adviser) must be members of MCDB&G.
- The third member of the committee must be a graduate faculty member in another graduate program
- One of the two members must have their primary academic appointment in a department other than that in which the student's adviser is based, i.e. GCD, BMBB.

PLAN A: Master's Degree with Thesis

The Plan A option is intended for students who have completed a body of work of sufficient breadth and depth to warrant a Master's thesis. This does not need to rise to the level of a Ph.D. thesis, but should represent a significant contribution to the field.

Credit requirements for Plan A:

30 or more credits including 10 Thesis Credits (MCDG 8777)
2/3 of total credits must be graded A-F

Thesis and Oral Examination

- Obtain a Graduation Packet by ordering at:
http://www.grad.umn.edu/current_students/forms/masters.html
- Complete the Degree Program Form.
- Instructions for preparing a Plan A Master's Thesis can be found at:
http://www.grad.umn.edu/current_students/forms/gs13.pdf

- Once completed and approved by your adviser, distribute your Master's thesis to your Committee. You need to give your readers a minimum of two weeks to read the thesis. Your Committee will determine whether the thesis is acceptable for defense. If acceptable, the Committee (and your adviser) will sign the Thesis Reviewer's Report form (found in the Graduation Packet) which needs to be submitted to the Graduate School before the defense date can be set officially. Signing the Thesis Reviewer's Report form indicates that the reader has judged that the thesis is ready for oral defense - and only that. The reviewer may have reservations and after the oral examination may vote to fail the candidate for the M.S. degree. However, this is rare and the annual student evaluations are designed to guard against such a possibility. **If the thesis is judged to be unacceptable for defense, specific reasons will be communicated to the student in writing and the thesis will need to be revised.**
- The Thesis Reviewer's Report form needs to be submitted to the Graduate School at least one week before the final oral exam.
- The Final Exam Report form will be sent to the committee chair.
- Submit the Final Exam Report by the last working day of the intended month of graduation.

This Final Examination is primarily the thesis defense, although the questions and discussion may cover related areas as well. The first portion of all final oral examinations is a one-hour seminar given by the student covering the thesis research. It is up to the student whether they want to make this seminar publicly announced and all interested faculty and students are invited or close it to only the committee members. The second portion of the examination will consist of additional questions to the candidate from the members of the examination committee. The second section of the examination is not open to the public.

PLAN B: Master's Degree Without Thesis

The Plan B option is the one most commonly chosen. In this case the student needs to write a scholarly, original report on the subject of their choice. Usually, students select a topic directly or closely related to the project they have worked on in graduate school, either during a rotation or during their time spent in the laboratory they selected for their thesis work. The report should be approximately 15 pages in length.

Credit requirements for Plan B:

- 30 or more credits including 10 credits chosen at the discretion of student and adviser.
(Research credits may be used.)
- 2/3 of total credits must be graded A-F

Project Report and Oral Examination

- Obtain a Graduation Packet by ordering at:
http://www.grad.umn.edu/current_students/forms/masters.html
- Complete the Degree Program Form.
- There is no official format for the Plan B report. Basically, it should be a scholarly and original document that thoughtfully discusses an important scientific topic that you and your adviser agree upon. It should include an Introduction that explains the significance of the topic, a review of the literature or an analysis of a specific aspect of the area and a discussion regarding questions of current or future endeavors.

- Once completed and approved by your adviser, distribute your Plan B report to your Committee.
- The oral examination for a Plan B report is limited primarily to a discussion of the written document. The aim of this examination is to determine whether you have command of the subject you have chosen and can lead an in-depth discussion of the topic.
- Submit the signed Final Exam Report, obtained from the Graduation Packet, to the Graduate School.

Time limit for earning degree

The Master's degree must be completed within seven years from the date of the oldest coursework on the degree program, including any transfer work. Note that in all cases, Plan A and Plan B Master's are treated identically.

Commencement and Award of the Degree

Refer to the Ph.D. section for information.

IV. MINOR IN MCDB&G

For a minor in MCDB&G, students need to take 12 credits in the program, graded A-F, and obtain a GPA not below 2.8 from these classes. The following courses are required, but substitutions may be allowed for these courses with the approval of the DGS:

BioC 8001, Biochemistry
 BioC 8002, Molecular Biology
 GCD 8151, Cell Biology
 GCD 8161, Developmental Biology

APPENDIX A - STUDENT ACADEMIC CONDUCT

Egregious misconduct is considered sufficient grounds for the assignment of a failing grade in a course or dismissal from the graduate program. Several examples of academic misconduct are given below:

- Copying answers from another student's examination paper during a closed book examination.
- Consulting lecture notes, the textbook, or a summary of important notes to oneself (a crib sheet) while writing a closed-book examination.
- Copying answers from another student's examination paper for a take-home examination.
- Collaborating with other students in the course of developing answers to take-home examinations through discussion of the exam questions and their answers.
- Permitting someone else to read and/or copy your answers to a take-home examination in order that they might better understand the question.
- Submitting a paper written wholly or in part by someone else to meet course requirements for a term paper or other technical writing.
- Failing to adequately reference sources of information or ideas used in the preparation of a term paper or other technical writing.
- Submitting fabricated data in place of experimentally determined results in a laboratory experiment.

- Selectively modifying data points so that experimental results more closely approximate the expected result.
- Selectively reporting only one set of data from a collection of equally valid sets of data in order to support a favored hypothesis.

APPENDIX B – ELECTIVE OPTIONS

Note: this is a partial list

FALL

| | |
|----------------|--|
| GCD 8171 | Literature Analysis (note: 2 credits) |
| GCD/BioC 8213/ | Selected Topics in Molecular Biology (4 credits) |
| SCB 8181 | Stem Cell Biology (3 credits) |
| BIOC 5361 | Microbial Genomics and Bioinformatics (3 credits) |
| BIOC 5527 | Introduction to Modern Structural Biology (4 credits) |
| BIOL 5485 | Introductory Bioinformatics (3 credits) |
| EEB 5042 | Quantative Genetics (3 credits) |
| EEB 5963 | Modeling Nature and the Nature of Modeling (3 credits) |
| NSC 5461 | Cellular and Molecular Neuroscience (3 credits) |
| NSC 5561 | Systems Neuroscience (3 credits) |
| PubH 6450 | Biostatistics I (4 credits) |
| Stat 5021 | Statistical Analysis (4 credits) |
| Grad 8101 | Teaching in Higher Education (3 credits) - Preparing Future Faculty (http://www1.umn.edu/ohr/teachlearn/pff/) |

SPRING

| | |
|-----------|--|
| Grad 8101 | Teaching in Higher Education (3 credits) |
| GCD 8008 | Mammalian Gene Transfer and Expression (2 credits) |
| GCD 8073 | Adv. Human Genetics (3 credits) |
| BIOC 5309 | Biocatalysis and Biodegradation (3 credits) |
| BIOC 5353 | Microbial Biochemistry and Biotechnology: Small Molecules (3 credits, alternate years) |
| BIOC 5352 | Microbial Biochemistry and Biotechnology: Proteins (3 credits, alternate years) |
| BIOC 5528 | Spectroscopy and Kinetics (4 credits) |
| BIOC 5530 | Selected Topics in Molecular Biophysics (1-3 credits) |
| BIOC 5444 | Muscle (3 credits) |
| BIOC 8216 | Signal Transduction and Gene Expression (4 credits) |
| EEB 5221 | Molecular and Genomic Evolution (3 credits) |
| MICA 8003 | Immunity and Immunopathology (4 credits) |
| MICA 8004 | Cellular and Cancer Biology (4 credits) |
| MATH 8540 | Topics in Mathematical Biology (3 credits) |
| NSC 8211 | Developmental Neurobiology (3 credits) |
| PHCL 5111 | Pharmacogenomics (3 credits) |
| PubH 6450 | Biostatistics I (4 credits) |
| Stat 5021 | Statistical Analysis (4 credits) |
| Grad 8102 | Practicum for Future Faculty (3 credits) Preparing Future Faculty (http://www1.umn.edu/ohr/teachlearn/pff/) |

APPENDIX C. MCDB&G FACULTY AND THEIR RESEARCH 2010

| Faculty | Research Description | Departmental Affiliation |
|--------------------------|--|--------------------------|
| Anindya Bagchi | Role of chromatin in human disease, namely cancer; investigate the effect of genetic copy number variation, namely deletion and amplification, in tumorigenesis and schizophrenia. | GCD |
| Vivian Bardwell | Transcriptional regulation in cancer and sex determination | GCD |
| Judy Berman | Yeast telomeres, chromatin and cell cycle; <i>Candida albicans</i> morphogenesis, cell cycle and genome organization | GCD |
| Susan Berry | Growth hormone responsive gene expression | GCD/Pediatrics |
| Bruce Blazar | Prevention of graft-versus-host disease (GVHD), Development of new strategies to enhance immune recovery after transplantation, Prevention of tumor/leukemia relapse, and Gene therapy and tissue repair | Pediatrics |
| Robert Brambl | Function of chaperone proteins and regulation of gene expression | Plant Biology |
| Rob Brooker | Molecular biology of the lactose permease | GCD |
| Lihsia Chen | Cell adhesion, signal transduction, cytoskeleton, & <i>C.elegans</i> | GCD |
| Duncan Clarke | Yeast Cell Cycle Control. | GCD |
| Kathleen Conklin | Virally- and non-virally-induced tumors | GCD |
| Sean Conner | Clathrin-mediated endocytosis; mammalian intracellular membrane trafficking | GCD |
| Dana Davis | <i>Candida albicans</i> genetics and pathogenesis | Microbiology |
| Jim Ervasti | Molecular Basis of Muscular Dystrophy; Role of Actin in Cell Polarity | Biochemistry |
| Robert Elde | Opioid receptors | Neuroscience |
| Michael Farrar | Signal transduction and lymphocyte development | Lab Med.Pathology |
| Cheryl Gale | Molecular mechanisms of morphogenesis in the opportunistic fungal pathogen, <i>Candida albicans</i> | Pediatrics |
| Laura Gammill | Early vertebrate neural development molecular embryology | GCD |
| Stuart Goldstein | Cell motility, especially flagellar beating | GCD |
| William Gray | Molecular basis of auxin-regulated growth and development; ubiquitin-mediated proteolysis | Plant Biology |
| David Greenstein | Developmental genetics, germline development, cell signaling | GCD |
| Perry Hackett | Gene expression in zebrafish, transposon, human gene therapy | GCD |
| Rueben Harris | The causes and consequences of mutation. | BMBB |
| Thomas Hays | Cytoskeletal-based motility and the functions of cytoplasmic dynein | GCD |
| Betsy Hirsch | Chromosome abnormalities | GCD/Lab Med.Path |
| Kristin Hogquist | Molecular mechanism of cell-fate determination in T cells | Lab Med.Pathology |
| Haojie Huang | Gene transcription regulation and cell fate determination | Lab Med.Pathology |
| Vicky Iwanij | Characterization of the glucagon receptor | GCD |
| Dan Kaufman | Hematopoietic and endothelial cell development from human and non-human primate embryonic stem (ES) cells | Medicine |
| Yasuhiko Kawakami | Understanding the molecular and genetic mechanisms of vertebrate limb development and mechanisms of congenital limb in human and limb regeneration | GCD |
| Nobuaki Kikyo | Chromatin remodeling during nuclear reprogramming | Medicine |
| David Kirkpatrick | Recombination initiation and DNA repair during meiosis | GCD |
| Deanna Koepf | Cell cycle regulation, Ubiquitination and proteolysis, Genetic mechanisms of tumorigenesis and Nucleocytoplasmic trafficking | GCD |
| Micheal Koob | Research Interests: Neurogenetics, animal models of ataxia, RNA sense/antisense gene regulation | Lab Med. Pathology |
| Ryoko Kuriyama | Cell division and cell-cycle control in animal cells | GCD |
| Michael Kyba | Stem Cell Biology: regulatory pathways, diseases and therapies Transcriptional control of mesoderm development | Pediatrics |
| Lorene Lanier | Axon guidance and growth cone motility | Neuroscience |
| David Largaespada | Identification and understanding of genes involved in myeloid leukemia development | GCD |
| Pete Lefebvre | Flagellar protein assembly in <i>Chlamydomonas</i> | Plant Biology |
| Bonnie LeRoy | Genetic Counseling | GCD |

| | | |
|--------------------------|--|----------------------|
| Paul Letourneau | Regulation of nerve growth cone migration | Neuroscience |
| Dick Linck | Molecular assembly and function of the microtubule cytoskeleton | GCD |
| Dennis Livingston | Preservation of genetic information | BMBB |
| Lou Mansky | Cell and molecular biology of HIV and HTLV | Diagnostic/Biol.Sci. |
| York Marahrens | The goal of our lab is to understand the mechanisms controlling long distance chromatin remodeling and inter-chromosomal signaling. To this end, we have investigated the role of the X-linked Xist gene in X-inactivation. | GCD |
| M. David Marks | Control of cell fate and differentiation in plants | Plant Biology |
| Jim McCarthy | Molecular basis of cell adhesion | Lab Med.Pathology |
| R. Scott Mclvor | Genes introduced into hematopoietic cells in vivo | GCD |
| Linda McLoon | Extraocular muscles in health and disease | Ophthalmology |
| Steve McLoon | Specificity in developing neuronal connections | Neuroscience |
| Matt Mescher | Requirements for activating T lymphocytes | Lab Med.Pathology |
| Yasushi Nakagawa | Cellular and molecular mechanisms of brain development and plasticity | Neuroscience |
| Hiroshi Nakato | Molecular and genetic analysis of Drosophila development | GCD |
| Tom Neufeld | Developmental control of growth and cell proliferation in Drosophila | GCD |
| Michael O'Connor | Cell-cell interactions in growth, differentiation, and development | GCD |
| David Odde | Study neuron growth in embryonic chick neurons and chromosome segregation in budding yeast. Both growth and division depend largely on the dynamics of the cytoskeleton, especially those of microtubules and actin filaments. | Biomedical Eng. |
| Neil Olszewski | Molecular genetics of plant hormone action and plant viruses | Plant Biology |
| Harry Orr | Molecular genetics of brain development and neurodegeneration | Lab Med.Pathology |
| Rita Perlingeiro | Mechanisms controlling lineage decision and reprogramming, and application to regenerative medicine | Medicine |
| Anna Petryk | Mammalian development and the molecular mechanisms underlying tissue differentiation and organogenesis | GCD |
| Mary Porter | Regulation of dynein-based motility | GCD |
| Laura Ranum | Molecular genetics of neurodegenerative diseases | GCD |
| Ann Rougvie | Developmental timing in C. elegans | GCD |
| Lisa Schimmenti | Development of ocular birth defects, hearing loss and autism | Pediatrics |
| Janet Schottel | mRNA stability, plant-pathogen interactions, immobilized cells | BMBB |
| Jocelyn Shaw | C. elegans embryonic development | GCD |
| Naoko Shima | Control of chromosome stability and its relationship to cancer | GCD |
| Yoji Shimizu | Lymphocyte & tumor cell adhesion, migration and signal transduction | Lab Med.Pathology |
| Carolyn Silflow | The microtubule component of the cytoskeleton | Plant Biology |
| Michael Simmons | Transposable genetic elements in Drosophila | GCD |
| Jeff Simon | Animal development; control of gene expression; chromatin mechanisms | GCD |
| Amy Skubitz | Role of the basement membrane protein laminin in cancer | Lab Med.Pathology |
| Jonathan Slack | Reprogramming of hepatocytes to pancreatic beta cells Reprogramming of biliary epithelium to pancreatic beta cells Cell lineage of ectopic endocrine cells Molecular mechanisms of Barrett's oesophagus | GCD |
| Nik Somia | Retrovirus biology, gene therapy and gene discovery | GCD |
| Bob Sorenson | Cell biology of insulin secretion and cell division in islets of Langerhans | GCD |
| Cliff Steer | Liver regeneration; hepatic gene expression; gene therapy | GCD/Medicine |
| Meg Titus | Molecular genetic analysis of unconventional myosin function | GCD |
| Howard Towle | Nutritional and hormonal regulation of hepatic gene expression | BMBB |
| Brian Van Ness | Molecular immunology | GCD |

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|-----------------------|---|---------------|
| Dan Voytas | Plant genome engineering through homologous recombination; Retrotransposable elements and genome organization | GCD |
| Chet Whitley | Gene therapy; human genetics; genetic diseases; lentivirus vectors | Pediatrics |
| Sue Wick | The cytoskeleton in plant cell growth | Plant Biology |
| Robin Wright | Cell biology, with emphasis on regulation of organelle biogenesis | GCD |
| David Zarkower | Molecular genetics of sex determination and gene regulation | GCD |

APPENDIX D. Training, Stipends, Vacation and Sick Time

1. **Safety Training:** Federal, state and local regulations require all University employees, including graduate students, to undergo safety training. Requisite training forms can be found at the Department of Environmental Health and Safety website:
<http://www.dehs.umn.edu/>
2. **Stipend:** MCDB&G students receive a set annual stipend as determined each year by the executive committee. Any salary other than the set stipend (including bonuses) needs prior approval from the DGS and the HR coordinator (Tami Jauert).
3. **Paychecks:** University employees (including student employees) are paid on a delayed bi-weekly payroll system. Pay periods are 2-weeks long, beginning on a Monday and ending on Sunday, 14 days later. Paychecks are available, by way of campus mail, in the departmental labs 10 days later on Wednesday afternoon. Forms to authorize automatic deposit can be obtained from the departmental payroll office personnel. Pay statements/Direct Deposit Authorizations are available online at “My One Stop” and the HRSS website (<http://hrss.umn.edu>) two days before payday.
4. **Vacation and Sick time:** Students have official University holidays off; for a current listing of holidays see: <http://www1.umn.edu/usenate/calendars/09-10tc.html>. Students are also allowed 10 paid sick days per academic year. Students do not have official paid vacation time; time off must be negotiated with your adviser.

APPENDIX E: EMPLOYMENT INFORMATION AND TUITION BENEFITS

Graduate Assistants Employment Office

Office of Human Resources, 200 Donhowe Building

Phone: 612-624-7070 Fax: 612-625-9801

email: gaoinfo@umn.edu

<http://www1.umn.edu/ohr/gae>

Policy and guideline information pertaining to graduate assistantship employment is available online (<http://www1.umn.edu/ohr/gae>) or from your hiring department. **Please be aware you are responsible for knowing the policies and guidelines applicable to your appointment as a graduate assistant.**

If you have F-1 or J-1 visa status, federal law prohibits the University from employing you more than 20 hours per week (50% time) during scheduled class periods and finals weeks. Exceptions exist if you have been authorized for ‘practical or academic training’. Consult with the Office of International Student and Scholar Services over these matters. Note that in most cases at least 40 hours of thesis research per week, excluding course-work, will be required to gain adequate progress to the PhD degree.

APPENDIX F: HEALTH AND DENTAL INSURANCE BENEFITS

N-323 Boynton Health Service
612-624-0627
email: gradins@bhs.umn.edu
<http://www.bhs.umn.edu/insurance/graduate/>

Students taking at least six credits are required to carry hospitalization insurance. Graduate assistants with 25% appointments or more can obtain health and dental care benefits by enrolling in the Graduate Assistant Health Care Plan. Enrollment information can be obtained from Tami Jauert. Once you are enrolled, your coverage will continue as long as your appointment remains at 25% or more. **If you have coverage Spring semester, you will be covered through the summer even if you are not working as a graduate assistant.** If you leave your graduate assistant appointment before the end of the term, your graduate assistant health-care coverage will end. However, you have the option of purchasing continuing coverage at your own expense.

A student with a 50% appointment will receive a 95% subsidy of premium for his or her own coverage. A student with a 25% appointment will receive a 47.5% subsidy. **Students will be billed their portion of the premium costs once each term (directly to the students account).** The Graduate Assistant Insurance plan also includes office visit co-pay for enrollees. The University contributes part of the cost of dependent coverage.

Outside insurance - If you already have insurance through your parents or spouse and you don't want to participate in the Graduate Assistant Health Care Plan, bring the name of your insurance company or HMO and your policy number to the Graduate Assistant Health Benefits office (N323 Boynton). **You must call their office (612-624-0627) every semester you register to tell them you have outside insurance.**

If you don't qualify for the Graduate Assistant Health Care Plan and don't have your own insurance, you may purchase the University-Sponsored Student Health Benefit Plan. If you register for at least six credits and don't have hospitalization insurance, you will automatically be enrolled in the Student Health Benefit Plan when you register.

APPENDIX G: FELLOWSHIPS AND AWARDS

A number of graduate fellowships and awards based on academic and research merit are available to new and currently enrolled grad students through the Graduate School. Information may be obtained from the Graduate Fellowship Office, 314 Johnston Hall, 612-625-7579 or via the web at <http://www.grad.umn.edu/fellowships/>.

The Graduate School publishes a list of available fellowships each year at:
<http://www.grad.umn.edu/fellowships/>.

Privately funded Fellowships

The Graduate School administers several privately funded fellowships. Please see the Graduate School fellowship website (listed above) for a current listing of available privately funded fellowships. Application deadline is December 1.

Doctoral Dissertation Fellowships

Candidates must be nominated by the MCDB&G graduate program to an all-University Graduate School competition. Fellowships are awarded to students who expect to complete their thesis research within 18 months. The internal MCDB&G program deadline will be announced by email and is in February of each year.

Thesis Research Grant

Grants of up to \$2,500 are available to support dissertation research, such as domestic travel and expenses for fieldwork, postage, and photocopying. Deadlines: October 1 and March 1 (if deadline falls on a weekend, then the following Monday.)

Torske Klubben Fellowship for Minnesota Residents

This fellowship award has been established to support outstanding graduate students (master's or Ph.D.) currently enrolled in any field in the University of Minnesota Graduate School. Applicants must have outstanding academic achievement, excellent leadership potential, and an interest in or connection with Norway. Must be official state of Minnesota residents. The stipend is \$13,000 for the academic year, plus full tuition. Sponsored by the Torske Klubben of Minneapolis. Deadline: March 1 (if deadline falls on a weekend, then the following Monday.)

The Minnesota Medical Foundation (MMF)

MMF administers several research awards each year. For a current list, see the **student honors and awards section** of their website, which can be accessed from <http://www.mmf.umn.edu/services/>, and scroll down to the research section. Applications are typically due in January.

Milne Brandenburg Awards

For the 2010-2011 and 2011-2012 academic years, the MCDB&G graduate program will administer travel awards as well as an award for the best manuscript of the year and three awards for poster presentations (contact Sue Knoblauch for details).

Carol H. and Wayne A. Pletcher Graduate Fellowship

The College of Biological Sciences (CBS) announces the Carol H. and Wayne A. Pletcher Graduate Fellowship annually in the summer. This one-year, \$2500 fellowship is supported by an endowment established through a generous contribution from Carol H. and Wayne A. Pletcher. The intent of the fellowship is to support a graduate student(s), with preference given to women, pursuing Ph.D. research in the College of Biological Sciences.

Students may also submit applications for fellowships through agencies that are external to the University of Minnesota. There is a listing of several external fellowships at the Graduate School website. Students should consult with their advisers about submitting applications for highly competitive fellowships from the NIH, NSF, American Heart Association, etc. **Submission of fellowship proposals to external agencies require consultation with your adviser and the GCD grants submission staff to coordinate the preparation and submission of proposals. Additional salary and/or bonus payments need prior approval from the DGS and HR.**

APPENDIX H. HELPFUL WEB ADDRESSES

- Advising, Counseling and Resolution:
Advising and grievance resolution may be sought through your adviser, the Director of Graduate Studies, the Department heads, the Graduate School, and the University Senate Judicial Committee. The following links provide possible contacts:
 - Office for Students with Disabilities: <http://ds.umn.edu/index.html>
 - University Counseling and Consulting Services: <http://www.uccs.umn.edu/>
 - Counseling and Advisory Services for International Students: <http://www.iss.umn.edu/>
 - University Grievance Office: <http://www1.umn.edu/ocr/>
 - Student Dispute Resolution Center: www.sos.umn.edu
- Computer labs: <http://www1.umn.edu/adcs/index.html>
- Council of Graduate Students (COGS), 405 Johnston Hall, <http://www.cogs.umn.edu>
- Graduate Assistant Medical Plan, N-323 Boynton Health Service, 612-624-0627 or email: gradins@bhs.umn.edu, <http://www.bhs.umn.edu/insurance/graduate/index.htm>
- Graduate Assistant Employment Office (GAE), 170 Donhowe Building, 612-624-7070 Fax: 612-625-9801, web at <http://www1.umn.edu/ohr/gae/>
- Graduate School Catalog: <http://www.catalogs.umn.edu/grad/index.html>
- Graduate School Handbook:
http://www.grad.umn.edu/current_students/handbook/index.html
- Graduate School website: <http://www.grad.umn.edu/>
- Graduate School Forms: http://www.grad.umn.edu/current_students/forms/index.html
- Graduate School Student Services: 316 Johnston Hall, 612-625-3490, http://www.grad.umn.edu/offices-contacts/student_services.html
- Health Service Boynton on St. Paul Campus, 109 Coffey Hall, 612-624-7700; on Minneapolis, 109 Eddy Hall, 612-624-0627, <http://www.bhs.umn.edu/>
- Housing: <http://www.umn.edu/housing/>
- International Student and Scholar Services, 190 Hubert H. Humphrey Center (HHH), 612-626-7100, <http://www.iss.umn.edu/>
- Libraries: <http://www.lib.umn.edu/>
- MCDB&G Graduate Program: <http://mcdbg.umn.edu>
- Parking and Transportation Services Office, 511 Washington Avenue SE, at 612-626-7275 or on the web at <http://www1.umn.edu/pts/>
Student contract lottery each semester at <http://www1.umn.edu/pts/studentcontracts.htm>

- Registration: <http://onestop.umn.edu/onestop/registration.html>
- Scholarships and Financial Aid, 210 Fraser Hall, 612-624-1665, http://www.onestop.umn.edu/onestop/Financial_Aid/Scholarships.html
- Center for Writing, 15 Nicholson Hall or 9 Appleby Hall, <http://writing.umn.edu/sws/>
E-mail: writing@umn.edu, Nicholson appointments and information: (612) 625-1893, Appleby walk-in center: (612) 626-1328.

University of Minnesota Policy Statements:

- http://www.grad.umn.edu/faculty-staff/governance/Policies/mutual_responsibilities.html
- Academic Code of Conduct:
<http://www1.umn.edu/regents/policies/academic/Conduct.pdf>
- Board of Regents, Academic Freedom and Responsibility:
http://www1.umn.edu/regents/policies/academic/Academic_Freedom.pdf
- Graduate Assistant Office Policies:
<http://policy.umn.edu/Policies/hr/Hiring/GRADSTUDENTEMPLOYMENT.html>
- Student Conduct Code:
http://www1.umn.edu/regents/policies/academic/Student_Conduct_Code.pdf

EQUAL OPPORTUNITY STATEMENT

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