

UNIVERSITY OF MINNESOTA

Molecular, Cellular, Developmental Biology, & Genetics (MCDB&G) YEAR II AND BEYOND

A Graduate Program Offering:
PhD, MD/PhD, PhD or MS/JD,
MS in Genetic Counseling &
an MS in MCDB&G
2002-2003

Graduate Student Support Services
5-116 Molecular Cellular Biology Building
420 Washington Avenue SE
Minneapolis, MN 55455
Phone 612-624-7470
Fax 612-626-6140
Email beckyd@cbs.umn.edu

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Appendix of Graduate School policy, procedure and forms

We have made every effort to provide you with information that is up-to-date as of November 2002. Some of these University policies are likely to evolve over your time of graduate training.

HELPFUL WEB ADDRESSES

- Computer labs: <http://www1.umn.edu/adcs/>
- Council of Graduate Students (COGS), 405 Johnston Hall, 101 Pleasant Street S.E., Minneapolis, MN 55455
<http://www.cogs.umn.edu/text/>
- Employment opportunities (TA/RA/Student jobs): <http://www1.umn.edu/ohr/gao/tafinder/> and
<http://www1.umn.edu/ohr/employ.html>
- Graduate Assistant Office Employment Guidelines:
<http://www1.umn.edu/ohr/gao/guidelines/hiring/employment.htm>.
- Graduate Assistant Medical Plan, N-323 Boynton Health Service, 410 Church Street SE, Minneapolis, 612-624-0627 or 612-625-6936 (voicemail) <http://www.bhs.umn.edu/insurance/graduate/index.htm>
- Graduate Assistants Employment Office (GAO) Office of Human Resources, 170 Donhowe Building, 319-15th Ave SE, Minneapolis, MN 55455, Phone: 612-624-7070 Fax: 612-625-9801, web at
<http://www1.umn.edu/ohr/gao/>
- Graduate School Bulletin: <http://www1.umn.edu/commpub/gradindex.html>
- Graduate School website: www.grad.umn.edu
- Graduate School Forms: <http://www.grad.umn.edu/forms/list.html#gssp>
- Graduate School Student Services: 316 Johnston Hall 101 Pleasant St SE Minneapolis, 55455 612-625-3490,
<http://www.grad.umn.edu/>
- Health Service Boynton on St. Paul Campus 109 Coffey Hall, 1420 Eckles Avenue, St. Paul, MN 612-624-7700; on Minneapolis 410 Church St. SE 612-624-0627 <http://www.bhs.umn.edu/>
- Housing: <http://www1.umn.edu/housing/>
- International Student and Scholar Services, 190 Hubert H. Humphrey Center (HHH) 301- 19th Avenue S, Minneapolis, on the West Bank, 612-626-7100 www.iss.umn.edu
- Libraries <http://www.lib.umn.edu/>
- MCDB&G Graduate Program: <http://cbs.umn.edu/mcdbg/>
- Office for Students with Disabilities, Gateway Building at 200 Oak St. Minneapolis, 612-626-1333.
<http://disserv3.stu.umn.edu/AG-S/2-0.html>
- Parking and Transportation Services Office, 511 Washington Avenue SE, at 612-626-7275 or on the web at
www1.umn.edu/parking. Student contract lottery each semester at <http://parklot.umn.edu>.
- Registration: <http://onestop.umn.edu/Enrollment/index.html>
- Scholarships and Financial Aid, 210 Fraser Hall, 106 Pleasant St. SE, Minneapolis, 612-624-1665.
<http://www.onestop.umn.edu/FinancialAid/>

STUDENT ACADEMIC CONDUCT

Every student is expected to act responsibly and honestly in all aspects of his/her graduate education. These responsibilities extend to both course work and laboratory research. Misconduct such as failing to work independently in examinations or falsifying research data is not acceptable in any academic community.

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 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.

ADMINISTRATION AND MANAGEMENT OF THE MCDB&G PROGRAM

While graduate programs are officially distinct from departments, in practice programs rely on departments for financial assistance, office staffing and space. Our program works closely with the Department of Genetics, Cell Biology and Development. This department is located in 6-160 Jackson Hall, 321 Church St. SE, Minneapolis Campus. The location of the program's staff administrator and the program files are located in 5-116 Molecular and Cellular Biology Building, 420 Washington Avenue SE, Minneapolis, MN 55455, phone 612-624-7470, email bekyd@cbs.umn.edu

GOVERNANCE

The **Director of Graduate Studies (DGS)** is responsible for all aspects of the Program; appoints the members of the Program's various committees; represents the Program to the University administration; is nominated and elected by the faculty members of the Program; serves for a three year term.

COMMITTEE STRUCTURE

The **Steering Committee** is chaired by the DGS and composed of the representatives of each of the other committees and a student representative. The committee meets at least once a semester to review the business of each committee and to deal with any special issues that arise. Meetings are open to all faculty.

The **Student Admissions Committee:** recommends standards for admission to the Program; reviews applications and recommends applicants for admission; establishes a regular dialogue with desirable students.

The **Student Recruitment Committee:** writes and designs the brochure for the Program; organizes and runs recruiting visits for prospective students; organizes an outreach program to local colleges to promote the Program through seminars and reciprocal visits.

The **Curriculum Committee**: recommends the curriculum and course requirements for students in the Program; recruits faculty members to teach courses as appropriate; encourages needed changes in the content of existing courses.

The **Faculty Review Committee**: recommends criteria for initial appointment and reappointment to the faculty of the Program; reviews new applications for appointment to the Program faculty; reviews annually applications for reappointment to the Program faculty.

The **Student Review Committee**: recommends the format for major examinations in the Program; prepares, administers and grades the written preliminary examination; reviews the progress annually of each student in the Program.

GRADUATE FACULTY RESPONSIBILITIES

- Direct an active research program
- Advise and support graduate students
- Annually evaluate students
- Provide for lab rotations
- Serve on student and graduate program committees
 - Admissions
 - Recruitment
 - Written Prelim Examination
- Teach one Current Topics course every five years that is open to MCDB&G students, possibly a course.

GRADUATE STUDENT RESPONSIBILITIES

- Course work, core courses and electives
- Seminars, participate in one regular seminar series
- Journal clubs, participate in one journal club series
- Teaching, see degree requirements below.
- Student committees
 - Curriculum
 - Recruitment
 - Steering
 - Student Evaluations
 - Council of Graduate Students - COGS
 - Genetics Cell Biology and Development Graduate Students Association - GCD/GSA
- Examinations, required by the Graduate School and designed by the Program, see degree requirements below.
- Annual report of activities

STUDENT ADVISING

PhD and MD/PhD and MS in MCDB&G

Advising can be obtained from your advisor, the Director of Graduate Studies (DGS), Meg Titus, 4-102 MCB- Minneapolis campus, telephone; 612-625-8498; email; titus@mail.med.umn.edu and Jocelyn Shaw, Associate DGS, 4-115 MCB- Minneapolis campus, telephone; 612-625-1912; email; jocelyn@cbs.umn.edu.

General advising, including registration, graduate school policy and procedure, is available from Becky at beckyd@cbs.umn.edu or 612-624-7470. She is located in 5-116 MCB.

MS in Genetic Counseling

~~Genetic Counseling students will be advised by the Director of Genetic Counseling, Bonnie LeRoy, Program Director, E mail: leroy001@umn.edu. Office Address: Genetics, Cell Biology and Development, 7 224 PWB, Delaware St SE, Minneapolis, MN 55455. Campus Mail: Genetics, Cell Biology and Development, MMC 485 Mayo, 8485, 420 Delaware, Minneapolis, MN 55455. Office Phone: 612 624 7193. Fax: 612 624 6645~~

MS or PhD/JD Joint Program

Students will be advised by the DGS in MCDB&G and Professor Susan Wolf of the Law School.

E-mail Address: wolfx009@umn.edu. Office Address: Law School, 442 Mondale Hall, 229 19th Av S, Minneapolis, MN 55455. Campus Mail: Law School-Instruction, Room 285 Mondale Hall, 7911, 229 19th Ave S, Minneapolis, MN 55455. Office Phone: 612-625-3406. Fax: 612-625-2011

REGISTRATION

Students must register for at least 6 credits but not more than 14 to maintain a full-time status in the first two years of the graduate program. As a PhD student, once the 24 thesis credits are completed, you will register for one credit to maintain full-time status. As a master's student, once the 10 thesis credits are completed you may register for one credit to maintain full-time status. ~~See the Graduate School web page at <http://www.grad.umn.edu/gsss/fte.html> for details.~~

International students need to register for 6 credits to maintain a full-time status. Once the 24 thesis credits are completed, you will register for one credit, however you must go to the International Student and Scholar Service, 190 Hubert H. Humphrey Center (HHH) on the West Bank, 612-626-7100 (www.iss.umn.edu) and fill out an exception form each semester unless you are registered for 8444.

Class Schedules, which include registration deadlines and other pertinent information can be picked up in all bookstores. ~~There are two ways of registering for courses: in person or by computer. To register in person, use the Course Request form located in the Class Schedule and bring it to 202 Fraser Hall or 130 Coffey Hall. To register by computer, see Section 1 in the Class Schedule for instructions. You can only register when it is time for your queue, see the Class schedule. To register <http://onestop.umn.edu/registrar/registration/index.html>~~

~~The Graduate School requires you have a transcript showing your bachelor's degree awarded. If one is not on file, an "OK" hold is placed on your registration. The Graduate School will release the hold once they have an undergraduate transcript showing degree awarded.~~

~~There are a number of categories of registration, which carry different tuition rates. Refer to the University's Class Schedule for detailed information. Tuition reimbursement will be limited to tuition costs for a maximum of **14 credits** per semester.~~

Selection of grading options (A/F, S/N) must be made as part of the initial registration, and any changes in option must be made as a registration change, using a Course Request form, within the first two weeks of the term.

Students registered for six or more credits in a semester must pay a student services fee. This fee provides a number of services including health service, recreational sports, Minnesota Union and Minnesota Daily (during the first two weeks of the semester, Minnesota Daily refunds may be obtained at the Bursar's Office). Keep your ID card and receipted fee statement with you at all times. These are your passes to receive treatment at the health service, borrow books from the library, cash checks, and take advantage of other University services.

Students who have not registered in the Graduate School for one semester will be considered to have withdrawn. Students who subsequently wish to resume graduate work must request readmission on a Graduate School Change of Status form, available on the web at www.grad.umn.edu/gsss/cos.html. This form must be submitted at least 6 weeks before the semester in which they wish to register.

The University has reciprocity agreements with Wisconsin, North Dakota, South Dakota, and Manitoba; and a limited reciprocity agreement with Kansas, Michigan, Missouri, and Nebraska. You must apply for reciprocity prior to the semester in which you wish your reciprocity to begin. After your first year, *provided you have earned credits*, your reciprocity will automatically be renewed. The residency and reciprocity office is located in 240 Williamson Hall on the East Bank of the Minneapolis campus, 612-625-6330.

STUDENT EVALUATION

Students are evaluated on an ongoing basis to insure to the maximum degree possible that uniform academic standards are applied to all graduate students, to assist in monitoring progress of students, to identify students whose academic progress is unsatisfactory, and to make recommendations concerning continuation or provision of financial support and/or change of degree objective.

Each graduate student is required to have one meeting each year with the faculty on his/her advisory committee to discuss academic and research progress and plans. After the first year, the committee will consist of the advisor and at least two other faculty members, who are a subset of faculty members on the appointed program committee. The advisory committee will be appointed by the DGS, who will solicit suggested names from the student and advisor. In the year in which the oral prelim is taken, it will substitute for the advisory committee meeting. In the fourth year, the advisory committee meeting will take place in conjunction with a formal research seminar presented by the student (see section on Ph.D. program).

At least one week before advisory committee meetings, the student will distribute a brief description of the research undertaken and research proposed for the next year (about 2 pages) and an academic transcript (this can be a current semesterly progress report obtained from the student's advisor or file or an unofficial transcript obtained from the registrar). The student should also be prepared to give a brief presentation of his/her research to the committee. **Within a week after the meeting, the student's advisor will prepare a written report of the conclusions of the committee meeting which will be signed by the student and the advisor. This review should cover all aspects of a student's academic activities which bear on his/her degree objective.** The report will be 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 advisory committee meetings.

THE FACULTY AND THEIR RESEARCH

Dwight L. Anderson	Bacteriophage morphogenesis.	<i>dlander@tc.umn.edu</i>
Vivian J. Bardwell	Transcriptional regulation in cancer and sex determination.	<i>bardwell@mail.med.umn.edu</i>
Timothy W. Behrens.	Molecular basis of human autoimmune diseases.	<i>behre001@tc.umn.edu</i>
Judith G. Berman	Yeast telomeres, chromatin and cell cycle; <i>Candida albicans</i> morphogenesis, cell cycle and genome organization.	<i>judith@cbs.umn.edu</i>
Susan A. Berry	Growth hormone responsive gene expression.	<i>berry002@tc.umn.edu</i>
Linda M. Boland	Molecular physiology of ion channels; synaptic plasticity.	<i>bolan007@tc.umn.edu</i>
Robert Brambl	Function of chaperone proteins and regulation of gene expression.	<i>brambl@cbs.umn.edu</i>
Robert J. Brooker	Molecular biology of the lactose permease.	<i>robert-b@cbs.umn.edu</i>
Lihsia Chen		
Duncan Clarke		
Kathleen F. Conklin	Virally- and non-virally-induced tumors.	<i>kathleen@mail.med.umn.edu</i>
Bianca Conti-Fine	Receptor proteins.	<i>conti@cbs.umn.edu</i>
Electra Coucouvanis	Cell death, cell differentiation, and cell lineage specification.	<i>electra@mail.med.umn.edu</i>
Stephen C. Ekker	Embryonic patterning; zebrafish; Xenopus; transposons; gene discovery.	<i>ekker001@mail.med.umn.edu</i>
Robert P. Elde	Opioid receptors.	<i>elde@mail.med.umn.edu</i>
Leo T. Furcht	Cell matrix and basement membranes.	<i>furch001@tc.umn.edu</i>
J. Stephen Gantt	Gene expression in plants.	<i>steve@cbs.umn.edu</i>
Stuart F. Goldstein	Cell motility, especially flagellar beating.	<i>golds004@tc.umn.edu</i>
Dale S. Gregerson	Immune tolerance in the nervous system.	<i>grege001@tc.umn.edu</i>
Perry B. Hackett	Gene expression in zebrafish, transposon, human gene therapy.	<i>perry@cbs.umn.edu</i>
David W. Hamilton	The sperm plasma membrane.	<i>dwh@mail.med.umn.edu</i>
Tom Hays	Cytoskeletal-based motility and the functions of cytoplasmic dynein.	<i>tom-h@cbs.umn.edu</i>
Robert K. Herman	Developmental genetics of <i>C. elegans</i> .	<i>bob-h@cbs.umn.edu</i>
Mark C. Herzberg	Microbial interactions with mammalian cells.	<i>mcherzb@tc.umn.edu</i>
Betsy A. Hirsch	Chromosome abnormalities.	<i>hirsc003@tc.umn.edu</i>
Kristin Hogquist	Molecular mechanism of cell-fate determination in T cells.	<i>hogqu001@tc.umn.edu</i>

Victoria Iwanij	Characterization of the glucagon receptor.	<i>vicky-i@cbs.umn.edu</i>
Stephen C. Jameson	Development and regulation of "killer" T lymphocytes.	<i>james024@tc.umn.edu</i>
Ross Johnson	Cell communication mediated by gap junctions, assembly mechanisms and role in embryonic development.	<i>gaplabb@tc.umn.edu</i>
Richard A. King	Genetic regulation of melanin pigmentation.	<i>kingx002@tc.umn.edu</i>
David Kirkpatrick	Recombination initiation and DNA repair during meiosis.	<i>dkirkpat@cbs.umn.edu</i>
Ryoko Kuriyama	Cell division and cell-cycle control in animal cells.	<i>ryoko@mail.med.umn.edu</i>
David Largaespada	Identification and understanding of genes involved in myeloid leukemia development.	<i>larga002@tc.umn.edu</i>
Paul A. Lefebvre	Flagellar protein assembly in Chlamydomonas.	<i>pete@cbs.umn.edu</i>
Bonnie LeRoy	Educating genetic counseling professionals.	<i>leroy001@tc.umn.edu</i>
Paul C. Letourneau	Regulation of nerve growth cone migration.	<i>letour@mail.med.umn.edu</i>
Brett Levay-Young	Growth factors in lung development.	<i>levay001@tc.umn.edu</i>
Richard Linck	Molecular assembly and function of the microtubule cytoskeleton.	<i>linck@mail.med.umn.edu</i>
Dennis M. Livingston	Preservation of genetic information.	<i>livin001@tc.umn.edu</i>
Paul T. Magee	Analysis of the genome of <i>Candida albicans</i> .	<i>ptm@cbs.umn.edu</i>
Patrick Mantyh	Neuronal growth factors and disease.	<i>manty001@tc.umn.edu</i>
Cary N. Mariash	Nutritional regulation of gene expression.	<i>cary@mail.med.umn.edu</i>
M. David Marks	Control of cell fate and differentiation in plants.	<i>dmarks@cbs.umn.edu</i>
James B. McCarthy	Molecular basis of cell adhesion.	<i>mccar001@tc.umn.edu</i>
R. Scott McIvor	Genes introduced into hematopoietic cells in vivo.	<i>mcivor@mail.med.umn.edu</i>
Steven C. McLoon	Specificity in developing neuronal connections.	<i>mcloons@snowman.med.umn.edu</i>
Matthew F. Mescher	Requirements for activating T lymphocytes.	<i>mesch001@tc.umn.edu</i>
Jeff Miller	Wnt signal transduction; Cell-cell signaling; Vertebrate development; Cell fate determination; Morphogenesis; Cancer Biology	<i>mille380@mail.med.umn.edu</i>
Thomas Neufeld	Developmental control of growth and cell proliferation in <i>Drosophila</i> .	<i>neufeld@mail.med.umn.edu</i>
Michael O'Connor	Cell-cell interactions in growth, differentiation, and development.	<i>moconnor@mail.med.umn.edu</i>
Neil Olszewski	Molecular genetics of plant hormone action and plant viruses.	<i>neil@cbs.umn.edu</i>
Harry Orr	Molecular genetics of brain development and neurodegeneration.	<i>harry@mail.med.umn.edu</i>
Ronald L. Phillips	Plant molecular genetics.	<i>phill005@tc.umn.edu</i>
Mary Pierpont	Carnitine metabolism.	<i>pierp001@tc.umn.edu</i>
Mary E. Porter	Regulation of dynein-based motility.	<i>mary-p@cbs.umn.edu</i>
Yun Qui	Signal transduction within eukaryotic cells.	<i>qiuxx009@tc.umn.edu</i>
Laura Ranum	Molecular genetics of neurodegenerative diseases.	<i>laura@mail.med.umn.edu</i>
Kenneth P. Roberts	Sertoli cell in regulation of mammalian spermatogenesis.	<i>roberts@mail.med.umn.edu</i>
Ann E. Rougvie	Developmental timing in <i>C. elegans</i> .	<i>rougvie@cbs.umn.edu</i>
Janet Schottel	mRNA stability, plant-pathogen interactions, immobilized cells.	<i>shot002@tc.umn.edu</i>
Jocelyn E. Shaw	<i>C. elegans</i> embryonic development.	<i>jocelyn@cbs.umn.edu</i>
William Shawlot	Genetic control of pattern formation during mouse embryogenesis.	<i>shawlot@mail.med.umn.edu</i>
Yoji Shimizu	Lymphocyte and tumor cell adhesion, migration and signal transduction.	<i>shimi002@tc.umn.edu</i>
Carolyn D. Silflow	The microtubule component of the cytoskeleton.	<i>carolyn@cbs.umn.edu</i>
Michael J. Simmons	Transposable genetic elements in <i>Drosophila</i> .	<i>simmo004@tc.umn.edu</i>
Jeff Simon	Animal development; control of gene expression; chromatin mechanisms.	<i>simon@cbs.umn.edu</i>
Akhouri A. Sinha	Stromal-epithelial interaction in tumors.	<i>sinha001@tc.umn.edu</i>
Amy P. N. Skubitz	Role of the basement membrane protein, laminin, in cancer.	<i>skubi002@tc.umn.edu</i>
D. Peter Snustad	Components of the cytoskeleton in Arabidopsis.	<i>pete-s@cbs.umn.edu</i>
Nik Somia	Retrovirus biology, gene therapy and gene discovery.	<i>somia001@umn.edu</i>
Robert Sorenson	Cell biology of insulin secretion and cell division in islets of	<i>soren001@tc.umn.edu</i>

Clifford Steer	Langerhans.	<i>steer001@tc.umn.edu</i>
Meg Titus	Liver regeneration; hepatic gene expression; gene therapy.	<i>titus@mail.med.umn.edu</i>
Howard Towle	Molecular genetic analysis of unconventional myosin function.	<i>towle@mail.med.umn.edu</i>
Brian G. Van Ness	Nutritional and hormonal regulation of hepatic gene expression.	<i>vanness@mail.med.umn.edu</i>
Catherine Verfaillie	Molecular immunology.	<i>verfa001@tc.umn.edu</i>
James G. White	Stem cell biology and plasticity: control by soluble and adhesion signals, gene expression.	<i>white003@tc.umn.edu</i>
Chester Whitley	Platelet biochemistry, structure, and function.	<i>whitley@tc.umn.edu</i>
Susan M. Wick	Gene therapy; human genetics; genetic diseases; lentivirus vectors.	<i>swick@cbs.umn.edu</i>
David Zarkower	The cytoskeleton in plant cell growth.	<i>zarkower@mail.med.umn.edu</i>
	Molecular genetics of sex determination and gene regulation.	

Ph.D. CURRICULUM

In the second year, students typically take two or three electives (often Advanced Human Genetics, Selected Topics in Molecular Biology, or Selected Topics in Developmental Biology, though joint degree students may take Law courses instead). PhD students must complete at least 12 credits in a minor field or supporting area. They also take a preliminary written examination by writing an original research proposal. Students must subsequently take a preliminary oral examination, which is loosely based on the written examination.

During the second year and beyond, the student has typically embarked on his or her doctoral dissertation research, taking 24 thesis credits. A minimum of three years in the laboratory is a realistic expectation for completion of a dissertation. At the completion of the doctoral dissertation research and submission of a written dissertation, the student must present a public seminar and pass a final oral defense.

The Ph.D. program is designed by the student and the adviser to meet individual interests and goals. Advanced courses in genetics, molecular biology, cell biology, developmental biology, and biochemistry are required, in addition to special courses, topical seminar courses, laboratory research rotations, thesis research, student research seminars, departmental seminars, and journal clubs.

Teaching experiences

All Ph.D. students will teach two semesters, not to include the first and last years. The intent of this policy is to ensure that all students in the program have, as part of their graduate training, experience as instructors at the university level. Credit for teaching experience is obtained through registration for 1 credit under the designator MCDG 8950, Teaching Practicum. Students are able to express their preferences for different teaching assignments. These experiences should provide for professional growth. JD/MS, MS in MCDB&G, and MD/PhD students will teach one semester. MS in genetic counseling and PhD/JD are not required to teach.

Second Year MCDB&G Graduate Student Course List

Students must register for at least 6 credits but not more than 14 credits to be considered a full time active student.

Required courses Year II Fall Semester

MCDG 8900 – Student Research Seminar aka ITV Seminar (1 cr)

MCDG 8950 – Teaching Practicum (1 cr) (Register for this only if you have been assigned a TA position)

MCDG 8666 – Pre-thesis credits (use only if you need more credits to make the 6 credit max.

Electives (*one elective 3 or 4 credit course, possibilities include*)

GCD 8213 – Selected Topics in Mol. Biol. (4 crs)

MIMP 8001 – Integrated Topics (3 crs)

BIOC 5309 – Biocatalysis and Biodegradation (3 crs)

BIOC 5401 – Adv. Metabolism and its Reg. (3 crs)

BIOC 5527 – Physical Biochem (4 crs)

BIOC 5530 – Sel. Topics in Mol. Bioph. (1 cr)

BIOC 8001 – Adv. Biochem. I (4 cr)

Required courses Year II Spring Semester

MCDG 8900 – ITV seminar (1 cr)

MCDG 8950 – Teaching Practicum (1 cr) (Register for this only if you have been assigned a TA position)

MCDG 8666 – Pre-thesis credits (use only if you need more credits to make the 6 credit max. Must call Becky for magic number)

Electives - *choose one elective 3 or 4 credit course, possibilities include*

GCD 8073 – Adv. Human Genetics (3 crs)

GCD 8212 – Sel. Topics in Cell & Dev. Biol. (3 crs)

BIOC 5352 – Applied Microbial Biochemistry (3 crs, taught every other year)

BIOC 5530 – Sel. Topics in Mol. Biophysics (1-3 crs)

BIOC 5444 – Membrane and Muscle (3 crs)

MIMP 8003 – Immunity and Immunopath. (4 crs)

MIMP 8004 – Cellular and Mol. Pathobiology (4 crs)

MIMP 8007 – Cell Biol. and Biochem. of the Extracellular Matrix (3 crs)

MIMP 8008 – Mammalian Gene Transfer and Expression (2 crs)

The minimum GPA required for courses included on the official program for any master's or Ph.D. degree program is 2.8. All incompletes on program courses must be cleared prior to taking the final oral. The program will notify you if conditions of a low GPA or excessive incompletes (over 6 credits) exist.

RECURRING ACTIVITIES

Seminars - GCD 8900.

Genetics, Cell Biology and Development weekly seminars are scheduled on Thurs-days at 12:00 p.m. alternating campuses. Students may reflect attendance at these seminars by registering in GCD 8900. Seminar notices will be distributed each semester to all students. **It is expected that each student will attend at least one seminar series on a regular basis, if not GCD, than a series in another department.**

Student Research Seminar aka ITV (Interactive TV) Seminars - MCDG 8900.

Second year students and beyond are expected to present an ITV research seminar. Seminars are broadcast on the St. Paul and East Bank campuses. All graduate students and graduate faculty are expected to attend each week. The aim of this seminar is to give each student an opportunity to present a formal seminar on their own research and also to give the student and faculty an opportunity to assess the student's progress towards completion of the thesis research. The advisory committee should attend the seminar and hold a committee meeting immediately or soon after the seminar to provide specific advice for completing the thesis research. Registration is via MCDG 8900.

Journal clubs

Students are expected to attend a journal club series regularly and to make at least one journal club presentation each year. Journal clubs meet on a regular basis during the academic year. Notices of the journal club meetings generally appear on the departmental bulletin boards. Further information may be obtained in the departmental offices.

Pre-Thesis Credits.

In a response to the need for doctoral students who must be registered to satisfy requirements external to the Graduate School, but who have not yet passed their preliminary oral examinations, an additional registration category has been created. Doctoral students who have **not yet passed their preliminary oral examinations** may register for doctoral pre-thesis credits (MCDG 8666). For students in the MCDB&G Program, these credits are not to be used until the first-year lab rotations have been completed. MCDG 8666 will NOT be graded. There is a maximum of 18 credits per semester. These credits will not be used to meet doctoral thesis requirements or other Graduate School requirements.

Thesis Credits

Students are required to register for thesis credits before receiving a Plan A master's (at least 10 credits of MCDG 8777 required), or before the final defense for the Ph.D. degree (at least 24 credits of MCDG 8888 required). Doctoral students may not register for thesis credits until the semester after they have **passed their preliminary**

oral examinations. Like Pre-Thesis credits, thesis credits will not be graded. Since this is a complex issue, we include here the Program policy for thesis credits.

MCDB&G Policy Regarding Registration for 24 Thesis Credits and Registration for 8444 after Completion of the 24 Thesis Credits

This is to advise you of two special registration requirements for students in the MCDB&G Ph.D. Program. You might be surprised to learn that by adhering to this policy, it is possible to save as much as \$5,616 in student support dollars in a single year, e.g., from research grant funds.

After passing the preliminary oral exam, the Graduate School requires students to register for 24 thesis credits, MCDG 8888. MCDB&G students must register for MCDG 8888 the semester immediately after passing the preliminary oral for 10-14 thesis credits and then 10-14 for the following semester (for a total of 24). We are requiring students to complete the required thesis credits quickly, within 2 semesters, because you are then placed in a status that dramatically reduces your fringe benefit rate – effectively saving your advisor thousands of dollars per year, if you are supported with research funds. Adjust the credits in these two semesters to accommodate any other courses you'd like to take, remembering that you will incur additional course fees if you register for more than 14 credits per semester, and that those additional fees would generally be your responsibility.

After completion of the 24 thesis credits, you are then placed in a registration category that allows you to register for 1 credit. To maintain current student status and to hold a research assistantship, most students will register for 1 credit of MCDG 8888. If you need to defer loans, registering for MCDG 8444 will need to be done each semester to be considered full-time.

If you register for 8444 you are required to complete the "Application for Full-time Status with One-credit Registration" form each semester you register for this status. You may download the form at www.grad.umn.edu/forms/list.html#gssp and click on Application for Full-time Status with One-credit Registration at the bottom of the list. Complete and sign the form and obtain the signatures of your advisor and the DGS and return it to Becky Drasin in 5-116 MCB no later than **the 2nd week of the semester.**

Please note that, if you are registered for 8444 or 8888 status, your tuition will be covered for only 1 credit.

You may register for courses beyond the 1 credit (including audits), but you will be responsible for any additional tuition and fees assessed. It is not possible to use federal grant funds to cover the costs of the additional credits, but it may be possible that your advisor can fund some additional credits with other funds, especially if this is related to your thesis work. In all cases, pursue this possibility with your advisor in advance of registering for the extra credit(s).

If you have any questions about this policy, please feel free to contact Becky at beckyd@cbs.umn.edu or 4-7470.

Additional information and information for masters students is available at the Graduate school web page <http://www.grad.umn.edu/gsss/fte.html>

Ph.D. PROGRAM EXAMINATIONS AND FORMS

~~Ph.D. DEGREE FLOW CHART (Also refer to complete descriptions of these topics beginning on page 16)~~

Average Time for Receipt of Degree 5 years

Maximum Time for Receipt of Degree 5 years after passing oral prelim

Examinations

Three examinations must be passed for a Ph.D. degree in MCDB&G: a written preliminary examination, an oral preliminary examination and a final oral examination with thesis defense. These examinations will be administered and graded by the student's Advisory & Examination Committee.

Selection of Permanent Adviser

By June 1st of the first year.

Students are assigned to DGS during first year. **Complete student/adviser contract** (available in MCDB&G Program office) by June 1, return it to 250 Bio Sci when completed.

Filing of Degree Program Form

Beginning of year 2.

Student obtains **Degree Program form** from web <http://www.grad.umn.edu/forms/list.html#gssp>. After consultation and approval of advisor, submit to DGS with current transcript. **Program must include a minimum of 24 Doctoral Thesis Credits (MCDG 8888) and have 12 credits in other courses. See page 12 for further details.**

A **degree program form** needs to be filed with the Graduate School. This form, lists all the course work you have taken or will be taking, the 24 thesis credits and also designates for the Graduate School who will be on your prelim oral committee and typically your final defense. Students may obtain the form via the web at _____ consultation and approval with your advisor, submit to the DGS with a current transcript. **The advisor can chair your prelim oral.** The DGS will forward it to the Graduate School. You must have 12 credits in the "other courses".

The student in consultation with his/her advisor will select five faculty members to serve on this committee. All five members must hold a graduate faculty appointment in the graduate school. Three of the faculty members must be current members of the MCDB&G graduate faculty, one of whom is the student's advisor. The other two faculty members are to hold an appointment in another graduate program related to the student's area of interest, although these two might also be members of the MCDB&G faculty. Two of the five committee members must have their primary academic appointment in a department other than that in which the student's advisor is based. The recommendation of committee members should be presented by the student and advisor to the DGS with a brief justification for each proposed member relative to the student's research interests. The DGS can approve the recommendations or request changes.

Associate membership in the faculty of the Graduate School entitles and obligates the member to teach courses for which graduate credit is given, to advise master's level students, and to examine candidates for doctoral level degrees. Full membership in the faculty of the Graduate School entitles the member to the rights, duties and privileges of associate members, and in addition the right and obligation to advise students pursuing studies that lead to doctoral level degrees.

For a list of the faculty and their appointment level and departments please refer to the web page at <http://www.grad.umn.edu/gsss/> Graduate School Policies/General Information - Graduate School Faculty Roster

Course Work; Years 1, 2

~~No specific credit requirements for the major; 12 or more credits in another "field" are required. This other field can still be in MCDB&G e.g., in cell biology if the major focus is development.~~

Written Preliminary Examination

Year 2 (spring semester).

DGS responsible for notifying MCDB&G Program office of exam results. Student should complete the **Preliminary Written Examination Report Form** signed by their advisor and return it to Becky in 250 Bio Sciences for the DGS' signature. The form needs to be returned to the Graduate School at least one week before preliminary oral.

This exam is currently based on a research proposal involving no more than 15 pages. It should include several components: background and significance, specific questions being addressed, preliminary findings and proposed

experiments. This last section should describe how the results will be evaluated and interpreted. The proposal can involve a likely thesis topic.

Preliminary Oral Examination

The Preliminary oral examination should be taken no later than the first week of the semester following the passing of the written exam, typically no later than Fall of the third year.

Student schedules exam with committee and Graduate School at least one week in advance - 5-4019 (cannot scheduled between end of first summer session and start of fall semester unless the members of the assigned committee can be assembled without substitution). Report form is sent to the chair of the exam committee, who returns form to Graduate School after exam. Results may be pass, pass with reservations, or fail. **Oral prelim may be taken a second time only with unanimous approval of the committee and same exam committee members.**

After notification from the DGS that the written preliminary examination has been passed, the student must take the preliminary oral **examination no later than the first week of semester following the passing of the written preliminary examination.** It is up to the student in consultation with the committee members to find a suitable date for the examination and to reserve a room through the department office. You must schedule your preliminary oral exam with **the Graduate School at least one week in advance using the Doctoral Preliminary Oral Examination Scheduling form found at <http://www.grad.umn.edu/forms/list.html#gssp>.** The oral preliminary examination will start with a defense of the written preliminary proposal. However, the examination is intended to be open-ended and may range into other areas. In particular, members of the examining committee representing the minor or supporting program should evaluate the student for her/his breadth of knowledge. Rules for the outcome of the oral preliminary examination are provided by the Graduate School.

Thesis Credits

Register for thesis credits beginning with the first semester after passing oral.

All Ph.D. students must complete a minimum of 24 credits of MCDG 8888, after passing prelim oral and before being cleared for the final examination.

Thesis research is generally carried out during the third and fourth years as a student. Students must enroll for a minimum of 24 credits of thesis registration via MCDG 8888 (Ph.D.) prior to the final examination. Doctoral students may not register for thesis credits until the semester after they have passed their preliminary oral examination. See page 12 for further details.

Filing of Thesis Proposal Form

File no later than first semester after passing oral exam.

Student obtains **Thesis Proposal form** from MCDB&G Program office or 3rd floor hallway Johnston Hall. After consultation and approval with advisor, submit to DGS (**chair cannot be advisor or co-advisor**).

The **Ph.D. Thesis Proposal Form** should be filed with the Graduate School no later than one semester after passing the preliminary oral examination. You may obtain the Thesis Proposal form from the MCDB&G Program office or 3rd floor hallway Johnston Hall or on the web at <http://www.grad.umn.edu/forms/list.html#gssp>. This form specifies the graduate faculty who will serve as examiners for the final oral examining committee as well as your Thesis Title and provides a brief description of the research to be undertaken and the methods employed. In most cases, this committee will be the same as the preliminary oral examination committee, however the **advisor cannot be the chair**. This form also specifies **three members who will serve as reviewers of the thesis. Two reviewers, including the advisor, are selected from the major field. One reviewer must also be selected to represent the minor or supporting program. This person must have a graduate faculty appointment outside of the MCDB&G program (although he/she may also be on the MCDB&G graduate faculty.)** These members read the thesis draft and must sign Thesis Reviewer's Report Form indicating that it is acceptable for defense at least one week prior to the scheduled date of the final oral examination.

Graduate Packet and Thesis Reviewer's Report Form

May be obtained after thesis proposal is approved but at least one week prior to the Final Oral Exam. Available via the web at http://www.grad.umn.edu/gsss/grad_packet.html. It includes: Graduation instructions, Application for Degree form, Commencement Attendance Approval form, Microfilm Agreement, and Survey of Earned Doctorates. The Thesis Reviewer's Report form will be issued at this time.

The Graduation packet and thesis reviewer's report form may be requested anytime after the thesis proposal form is approved via the web at http://www.grad.umn.edu/gsss/grad_packet.html. It includes: Graduation instructions, Application for Degree form, Commencement Attendance Approval form, Microfilm Agreement, and Survey of Earned Doctorates.

Thesis Reviewers Report Form

Notify reviewers at least two weeks prior to delivery of thesis to allow reviewers at least two weeks to read the thesis. Student responsible for returning certified Thesis Reviewer's Report form to Graduate School at least one week before final oral. Student provides each reviewer as well as other committee members with a copy of the thesis (and the abstract).

Final Oral Exam Scheduling

At least one week in advance in order for the Grad School to clear you to defend. See the scheduling form for requirements <http://www.grad.umn.edu/forms/list.html#gssp>

It is up to the student to find an appropriate date and room for their final oral exam. Likewise, the student is expected to provide the reviewers a reasonable length of time to read his/her thesis. Graduate rules specify that all members of the committee must have at least two weeks to read the thesis. The final exam must be scheduled with the Graduate School at least one week in advance at 612-625-0168 . The final oral exam scheduling form may be obtained on the web at <http://www.grad.umn.edu/forms/list.html#gssp>.

This 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.

Questions often arise about the role of the reviewers and the interpretation of the reviewers' actions prior to the oral examination. The reviewers determine whether the thesis is acceptable for defense. If the thesis is judged to be not acceptable for defense, specific reasons will be communicated to the student in writing. If acceptable, 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 not to pass the candidate for the Ph.D. degree. However, this is rare and the annual student evaluations are designed to guard against such a possibility. Again, any concerns related to the thesis draft should be communicated to the student in writing. Refer to the Graduate School Bulletin for more detailed information regarding the final oral exam.

Submit **one** copy of the thesis abstract and **one** copy of the thesis (all signed by the advisor), the signed and passed Final Oral Examination Form, Microfilm Agreement Form and the Survey of Earned Doctorates by the last working day of the intended month of graduation. The application for degree must be submitted by the first working day of the month of intended graduation. Instructions for the preparation of the thesis, including format specifications and adviser's signature requirements, should be obtained from the Graduate School, 316 Johnston Hall or on the web at www.grad.umn.edu/forms/gsl6.pdf. **One additional bound or unbound copy of the thesis is required by the program.**

Application for Degree Form

Submit by the first working day of the intended month of graduation. Obtained with the Graduate Packet and Thesis Reviewer's Report Form.

Final Oral

The final oral must be scheduled with the committee and the Graduate School (5- 0168) at least one week before the proposed examination date. See the scheduling form for requirements <http://www.grad.umn.edu/forms/list.html#gssp> At least 10 weeks must elapse between the prelim and final orals. Final Exam Report form will be forwarded to the chair of the exam committee, who returns report form to Graduate School; no more than one dissenting vote for student to pass the examination.

Thesis Submission

Student responsible for providing Microfilm Agreement Form and the Survey of Earned Doctorates by the last working day of the intended month of graduation along with one unbound copy of your thesis. Provide program with one copy of **bound or unbound** thesis. Information on technical specifications for the thesis is available in 316 Johnston or on the web at <http://www.grad.umn.edu/forms/list.html#gssp>.

Required Program GPA = 2.8 (in academic courses, excluding journal clubs, seminars, thesis and research credits). No more than 1/3 course credits included on the degree program can be graded S/N.

Failure to meet the timing requirements noted above may result in written warnings, loss of funding, and/or dismissal from the Molecular, Cellular, Developmental Biology and Genetics Graduate Program.

MD/PhD Program

The PhD requirements for the MD/PhD are the same as those for students pursuing only the PhD, with one exception. That is that MD/PhD students are only currently required to fulfill one teaching assistant assignment. There are also some differences in timing for the written oral prelim exams. MD/PhD students should discuss these with the Director of Graduate Studies.

JD/MS or PhD/JD Program

Please refer to their web site at <http://www.jointdegree.org/about.php> for the most current information.

MASTER OF SCIENCE PROGRAM in MCDB&G

The course requirements for a Plan B (non-thesis) MS are identical to those for the PhD. MS students are required to complete at least 30 credits total. Plan B MS students do not have to conduct long-term research, but they are required to do two 10-week laboratory rotations, and to submit a 15-page paper outlining the research they conducted on their rotations, which constitutes their Plan B paper. A final examination is also required.

Students in the Joint Degree Program combine their Law and Science curricula by cross-counting up to 12 Law credits in their Graduate School program and up to 12 Graduate School credits in their Law School program.

Average Time for Receipt of Degree 2 years

Maximum Time for Receipt of Degree 7 years (beginning with the earliest work included on the official degree program, including any transfer work)

Selection of Permanent Adviser

By June 1st of the first year. Students are initially assigned to DGS.

For the MS in Genetic counseling see Bonnie LeRoy for degree requirements.

Course Work

Year 1

Plan A (with thesis)

Minimum:

14 semester credits in major field

6 semester credits in related field

10 Thesis Credits, at a minimum (MCDG 8777)

30 credits total

Plan B [non-thesis]

Minimum:

14 semester credits in major field

6 semester credits in related field

10 semester course credits at discretion of student and adviser. (Research credits may be used.)

30 credits total

Filing of Degree Program Form

By the end of the second semester.

Student obtains **Degree Program form** via the web at <http://www.grad.umn.edu/forms/list.html#gssp>. After consultation and approval with advisor and DGS, submit to MCDB&G Program office with current transcript. Plan A students include the proposed thesis title on the degree program form.

Associate membership in the faculty of the Graduate School entitles and obligates the member to teach courses for which graduate credit is given, to advise master's level students, and to examine candidates for doctoral level degrees. Full membership in the faculty of the Graduate School entitles the member to the rights, duties and privileges of associate members, and in addition the right and obligation to advise students pursuing studies that lead to doctoral level degrees.

For a list of the faculty and their appointment level and departments please refer to the web page at <http://www.grad.umn.edu/gsss/> Graduate School Policies/General Information - Graduate School Faculty Roster

Graduate Packet and Thesis Reviewer's Report Form

Pick up anytime after the degree program form is approved. Available from 316 Johnston Hall. It includes: Graduation instructions, Application for Degree form, Commencement Attendance Approval form, and Final Examination Report or Thesis Reviewer's Report Form.

Thesis Reviewers (Plan A)

Notify reviewers at least two weeks prior to delivery of thesis; allow readers at least 2 weeks to read the thesis.

Student responsible for returning certified Thesis Reviewer's Report form to Graduate School in exchange for the Final Examination Report form.

Application for Degree Form

First working day of the intended month of graduation.

Obtain and submit form to 200 Fraser or 130 Coffey Hall.

Final Examination

(Plan A and Plan B)

Examination coordinated by chairperson of committee. Student obtains report form from the Graduate School. A majority vote of the three-member committee, all members present and voting, is required to pass the exam. In case of failure, unanimous committee consent required to retake final exam, and only one retake is allowed.

Thesis Submission (Plan A)

Student responsible for providing Graduate School with **one** copy of **unbound** thesis (signed by the adviser). Provide program with **one** copy of **bound or unbound** thesis. Information of the technical specifications for the thesis is

available in 316 Johnston Hall.

Required program GPA = 2.8 (in academic courses, excluding journal clubs, seminars, thesis and research credits)
No more than 1/3 course credits included on the degree program can be graded S/N

Failure to meet the timing requirements noted above may result in written warnings, loss of funding, and/or dismissal from the Molecular, Cellular, Developmental Biology and Genetics Graduate Program.

The Graduate School has specific course credit requirements for the master's degree and the student must make the choice between a Plan A (with thesis) or Plan B (non-thesis) program. Master's candidates are required to take a

final oral examination as outlined in the Graduate Bulletin. A Degree Program form must be filled out and submitted to the director of graduate studies for review.

The Plan B project requirement can be satisfied in three ways:

1. By undertaking projects, of appropriate scope (independent of any courses) involving a minimum of 120 hours of effort. This is the recommended option for MCDB&G and involves two 10-week lab rotations and a final report of 15 pages.
2. By completing Plan B papers in three graduate courses in the master's program, each requiring approximately 40 hours of effort. The student will have the instructor certify that he/she has agreed to the paper and that it meets the standards of a Plan B paper.
3. By undertaking independent study courses, creditable to the master's program, devoted totally to the completion of Plan B project(s). A total of 120 hours of effort is the minimum requirement.

Master's candidates not intending to seek a Ph.D. may wish to pursue a program with less emphasis on analytical and quantitative biology and greater emphasis on biological breadth. This may be true particularly where the student's goal is to pursue a teaching career requiring a broad background in biology.

GRADUATE SCHOOL

The Graduate School is housed in Johnston Hall on the Minneapolis campus. Directors of Graduate Study (DGS) serve in a liaison capacity with the Graduate School. These individuals coordinate the programs and can be of assistance to students in need of information on regulations and requirements at both the program and Graduate School level.

~~Chaired by the Dean of the Graduate School, the Graduate School Executive Committee is the highest policy and decision making body of the Graduate School. It is composed of the chairpersons of the Policy and Review Councils, representatives from the Duluth campus, student representatives from the Council of Graduate Students (COGS), and representatives from the Graduate School staff.~~

GRADUATE RECORDS

Each semester the Graduate School will distribute to the Director of Graduate Studies an operational record (internal transcript) for all students currently registered. The record contains course and grade information drawn from student records maintained by the Office of the Registrar.

The official transcript will include a complete record of a student's registrations after the end of the second week of classes each semester and grades or registration symbols assigned for those courses. Transcripts may be obtained at 150 Williamson Hall, Minneapolis, or 130 Coffey Hall, St. Paul. You can access your grades by using a touch tone telephone and dialing 612-624-5200 or via the web at <http://onestop.umn.edu/registrar/Grades/index.html>

Degree Clearance, GRADUATION and COMMENCEMENT CEREMONIES

Graduate students may graduate monthly. By obtaining the Graduation packet and submitting the application for degree by the first working day of the month, the Graduate School will monitor completion of academic degree requirements, i.e., course work, final examination report forms, microfilming fees, theses, etc. 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. Please refer to these web pages for an explanation of the Graduate School forms, requirements and process at <http://www.grad.umn.edu/gsss/doctoral.html>, <http://www.grad.umn.edu/gsss/djustification.html>, and at <http://www.grad.umn.edu/forms/g09.pdf> Graduation Instruction for Doctoral Candidates.

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 a student wishes to have his or her name appear in the Commencement Program distributed at the ceremony and/or attend the ceremony, they must complete the Commencement attendance form and have it signed by their advisor and the DGS by the deadlines (see Graduate Students services 5-116 MCB) www.grad.umn.edu/forms/g54.html for further information regarding the Graduate School Commencement Cerimonies. 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/forms/g54.html>. and <http://www.grad.umn.edu/forms/Fall.html>

STUDENT FINANCIAL AID STUDENT JOB OPPORTUNITIES

~~There are three general categories of financial aid offered to students on a need and funds available basis: scholarships and grants, student loans, and student employment. The major source of funding for graduate student support is available through the Department by means of Teaching and Research Assistantships.~~

GRADUATE ASSISTANT INFORMATION

Graduate assistants (GA) who hold at least a 25% time appointment 195 hours per semester) receive tuition benefits (tuition waivers) equal to twice the percentage of their appointment for the semester in which they hold the appointment. For example, those holding a 25% appointment will receive a 50% tuition benefit, while those with an appointment of 50% or more will receive a 100% tuition benefit. A 50% appointment is typical for PhD students. These benefits waive tuition only and do not cover the student services fee or course fees. Please review the important information on their web page at <http://www1.umn.edu/ohr/gao/guidelines/hiring/employment.htm>.

Health care

Graduate assistants with appointments of 25% or more are eligible to receive a health-care package. To obtain this coverage you must enroll at Boynton Health Service (625-8400). 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. For more information, contact the Graduate Assistant Medical Plan, N-323 Boynton Health Service, 612-624-0627 or 612-625-6936 (voicemail) or refer to their website for detailed information at <http://www.bhs.umn.edu/insurance/graduate/>

All graduate assistants and students receiving financial aid through other appointments must be registered in each fall and spring semester during which they hold appointments. A hold will be placed on the records of a student who has accepted pay for graduate assistantship work and who has not registered for that semester, or who has canceled all valid registration for that semester. **Students must be enrolled for a minimum of 6 credits each semester during the academic year or until they have passed their preliminary oral exam and taken their 24 thesis credits, after which they may register for 1 credit of MCDG 8444 to maintain full-time status.**

Tuition and In-state Tuition Eligibility

If a student holds a 25% time (or more) graduate assistantship, traineeship or fellowship for three academic semesters, the privilege of eligibility for in-state tuition is extended on a semester-for-semester basis up to a maximum of six semesters of use. This privilege applies to the student and to members of his/her immediate family.

Both resident and nonresident graduate students who hold current qualifying graduate appointments may choose to pay their tuition and student services fee by payroll deduction if they owe tuition and applicable fees in excess of \$150, and their total net earnings for the last four paychecks of the semester are equal to or greater than what is owed plus \$80.

The Graduate Assistants Office (GAO), Office of Human Resources, 170 Donhowe Building, 319-15th Ave SE, Minneapolis, MN 55455 , Phone: 612-624-7070 Fax: 612-625-9801, email: gaoinfo@gold.tc.umn.edu, web page, [www: http://www1.umn.edu/ohr/gao/](http://www1.umn.edu/ohr/gao/), certifies eligibility for resident tuition rates for both current and former graduate assistants and their families, as well as eligibility for payroll deduction of tuition and fees for those holding current appointments as graduate assistants. Certification for current students is part of the regular procedure for processing graduate assistant appointment documents, and will be coded directly into the computerized registration

system. Immediate family members and students wishing to claim extended nonresident tuition credit must bring ID cards to the Graduate Assistants Office each semester for certification prior to going to the registration center.

Fellowships

A number of graduate fellowships and awards based exclusively on academic merit are available to new and currently enrolled grad students through the Graduate School. Information may be obtained from the Graduate Fellowship Office, 321 Johnston Hall, 612-625-7579 or via the web at <http://www.grad.umn.edu/fellowships/>.

The Office of Scholarships and Financial Aid, located in 210 Fraser Hall, Minneapolis, 612-624-1665, can provide students with general information on available loans and scholarships. Their web site is at <http://www.onestop.umn.edu/Finances/index.html>.

A number of work opportunities present themselves for grad students appointed as TA's or RA's at less than 50% time. Information on these can be obtained from Student Employment, and by watching postings of work opportunities on departmental bulletin boards or on the web at <http://www1.umn.edu/ohr/gao/tafinder/> and <http://www1.umn.edu/ohr/employ.html>

EMPLOYMENT TERMS AND CONDITIONS FOR UNIVERSITY OF MINNESOTA GRADUATE ASSISTANTS

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

In addition to the terms and conditions set forth in your graduate assistant appointment letter, graduate assistantships are contingent upon admission to the Graduate School, current registration as a graduate student and satisfactory progress toward a Graduate School degree. In order to hold a graduate assistantship during fall or spring semester you are required to be registered for credit (audit registration only is not acceptable). For regular assistantships, 6 credits of registration are required; for Advanced Masters and Ph.D. Candidate positions, one credit is required. If personal circumstances require registration for fewer than six credits, you may apply for an exception. For details, see the above web site. Registration during May Intersession and summer term are not required to hold an assistantship.

Registration must be completed by the end of the second week of classes and maintained for the entire semester or your graduate assistantship will be terminated. Withdrawal from all credits will result in termination of your assistantship. ~~If your assistantship is terminated, the hiring department has the option of converting your appointment to a non-student classification for the remainder of that semester only; however,~~ Benefits such as your graduate assistant health insurance plan and tuition benefits may be adversely affected.

Tuition benefits will be available to you if you meet eligibility requirements. These benefits are summarized on the following pages. Further details may be found online (<http://www1.umn.edu/ohr/gao>).

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.

TUITION BENEFITS

Waiver of Nonresident Portion of Tuition

Graduate Assistants who work a minimum of 25% time (10 hours per week) per semester and are properly registered are eligible to receive resident rate tuition during that semester. Resident rate tuition also applies to eligible students' immediate family members (spouse or registered same sex domestic partner, children, parents, or legal guardian or ward living in the household).

Maximum Benefits per Semester

A graduate assistant appointed 50% time (an average of 20 hours per week) for the full-semester payroll period (which begins before the start of classes and extends beyond finals week) typically receives a tuition benefit equivalent to the Graduate School's tuition band level (at resident rates). This benefit would cover 6-14 credits per semester. Those in the Advanced Masters or Ph.D. Candidate job classes receive a benefit equal to one credit of Graduate School tuition. Legal Project Assistants with Tuition Benefits receive the equivalent of Law School tuition. Medical Fellows must work 100% time for the full semester to receive the equivalent of the Graduate School's tuition band level.

Prorated Tuition Benefits

Graduate assistants appointed for less than 50% time or for less than the full semester payroll period will not receive the maximum tuition benefits. Their benefits are prorated according to the total number of hours worked over the 19.5 week payroll semester. Maximum benefits require appointments of at least 390 hours per semester (20 hours x 19.5 weeks). Appointments for fewer than 195 hours per semester (equivalent to a 25% appointment for the full term) do not qualify for any tuition benefit.

The tuition benefit percentage can be calculated by dividing total semester hours of employment by 390. A full-semester 25% appointment (195 hours) receives half of the Graduate School band tuition level. Full term appointments between 25% and 50% receive prorated tuition benefits, the percentage equivalent to double their appointment percentage (e.g., a 40% appointment receiving 80% tuition benefit).

Appointments Beginning After or Ending Before the Official Semester Appointment Dates

Appointments that begin after or end before the official semester appointment dates will be prorated according to total hours worked for the semester payroll period. The student will have the unearned portion of tuition benefits billed to them, at non-resident rates if applicable. If the shortened appointment falls below the 195-hour eligibility threshold (equivalent to a 25% time appointment for the full semester period), 100% of the tuition will be billed to the student, at non-resident rates if applicable.

Appointments Ending Due to Graduation

If an appointment ends early because of graduation, the student will receive the full tuition benefit awarded for that final term of employment as a graduate assistant. The benefit will not be prorated and charged back to the student. However, your health benefits may be affected check with the Graduate Assistant Health insurance office at _____.

Summer Tuition Benefits

Nine-month academic year assistantships carry no summer tuition benefit. Summer benefits are earned only from hours of assistantship employment during the 13 week summer period between spring and fall semesters. In order to provide comparable maximum benefits to those earned during an academic year semester, summer benefits accrue at a 50% faster rate; maximum benefits (typically, the Graduate School's tuition band level) are earned for 260 hours of summer employment (i.e. 20 hours x 13 weeks) and lesser hours are prorated according to that 260 hour norm. The minimum summer appointment threshold for tuition benefits is 65 hours. Benefits are higher for the 9574 job class, Summer Session Teaching Assistant, and are calculated differently. See the GAO website (<http://www1.umn.edu/ohr/gao>) for details.

Extended Waiver of Nonresident Portion of Tuition

Former graduate assistants, their immediate family members, and/or domestic partners are eligible to receive extended resident rate reductions if the graduate assistant has held at least 2 semesters of qualifying appointments (at least 25% time). This benefit is extended to graduate assistants who are no longer employed as graduate assistants for a maximum of 4 semesters, one term of extended benefit earned for each term of employment. Extended benefits must be used within 3 years of the last term of assistantship appointment.

Provisional Tuition Benefits

~~A department may place a graduate assistant on a provisional appointment (flexible hourly) whereby the assistant may receive a tuition benefit at the beginning of the semester based upon an estimation of the number of hours the assistant will work per week. The department shall submit the actual number of hours worked by the assistant at the end of the semester to Graduate Assistant Employment. Any hours worked in excess of the estimated number will result in a tuition benefit credit, if applicable. If fewer hours are worked than the estimated number, the~~

~~student will be billed for the unearned portion of tuition benefits, at non resident rates if applicable. If the total number of hours worked per semester falls below the 25% time minimum eligibility requirement (195 hours) in order to receive a tuition benefit, the student will be billed for the entire tuition benefit received, at non resident rates if applicable.~~

FACILITIES

CBS Imaging Center, 23-35 Gortner Lab, 612-624-3454.

Research light microscope with cooled CCD video camera, Confocal laser microscope, Phosphorimager, densitomer Scanner, printers, and computers for image processing.

Advanced Biosciences Computing Center (ABCC), 247 Gortner Ave., 625-9284.

University-wide computer system for the study of biomolecular structure and for the design and analysis of recombinant DNA experiments.

Biomedical Image Processing Laboratory, 1-205 Basic Sciences & Biomedical Engineering (BSBE), 612-624-6607.

Computer facility for analyzing biological structure, capable of generating complex three-dimensional images, resolving structure with image enhancement and analyzing patterns in diverse images.

Electron Optical Facility, 495 Borlaug Hall, 612-625-8249. Scanning electron microscopy, transmission electron microscopy and X-ray microanalysis.

Institute for Biological Process Technology, 240 Gortner Lab, 612-624-6774. Facilities for growing and monitoring large-volume cultures of prokaryotic, plant, and animal cells.

Medical School Electron Microscopy Facility, 1-225/1-234 Basic Science & Biomedical Engineering (BSBE), 612-624-4652.

Access to state-of-the-art equipment for trained users at reasonable costs. Education in the preparation of specimens and training in the use of specialized equipment and microscopes. Full service electron microscopy (transmission or scanning) for pilot or long term studies.

MicroChemical Facility, 1-202 Basic Science & Biomedical Engineering (BSBE), 612-624-3177.

Fully automated, gas-phase protein sequenator with in-line HPLC amino acid analyzer, Oligonucleotide synthesizer, Peptide synthesizer, and HPLC purification systems.

EMAIL ACCOUNT

~~You will receive an e-mail address once you have registered for Fall Semester. To initiate your email address, go to the web site: <http://www.publabs.umn.edu/publab/text/hrs-all.htm> Questions, call the e-mail help line at 612-626-4276.~~

Lab locations:

St. Paul Campus

17 Classroom Office Building
135 Classroom Office Building
305 McNeal Hall
B50 Magrath Library
406 BioScience Center

Minneapolis Campus

148 Folwell Hall
9 Walter Library
54 Eddy Hall Annex
121 Elliott Hall

U of M ID CARD

~~To obtain a U of M picture ID card, go to one of the following places. You will need to bring a picture ID.~~

~~U Card Office~~

~~825 Washington Avenue SE Room 107~~

~~In Stadium Village in the same building as Perry's Pizza and Subway.~~

Monday-Friday 8:30am-4pm
Phone 612-626-9900

University Recreation Center
1906 University Avenue SE
Weekdays: 11am-1pm and 4-6pm; Saturday: 11am-1pm
Hours subject to change
Phone 612-625-6800

St. Paul Gym
1536 N. Cleveland Avenue, St. Paul campus
Monday, Tuesday and Thursday: 4-6pm
Wednesday, Friday and Saturday: 11am-1pm

BUS PASSES

~~U Pass and Metropass, discounted bus passes providing unlimited rides anywhere, any time on Twin Cities bus system. For more information and to order passes, visit <http://buspass.umn.edu/upassinfo.html>~~

PARKING

~~Parking is available on a per day or contract basis. The lots are crowded, with long waits for a contract spot. Details on parking are available from the Parking and Transportation Services Office at 612-626-7275 or on the web at www1.umn.edu/parking. There is a student contract lottery each semester you may check the web page at <http://parklot.umn.edu>.~~

MAILBOXES

~~There will be a shared lab mailbox in~~

POST OFFICES

~~The St. Paul campus post office is located in room 42 St. Paul Student Center. Located at 107 Coffey Hall is a cashier's office where students may cash checks. The Minneapolis campus post office is located in 2-220 Phillips-Wangensteen Building. The cashier's office in Minneapolis is located in 145 Williamson Hall.~~

CATALOGS, ETC.

~~Graduate Student Handbook, published by the Orientation Office (Graduate Student Information Program) and Publications Center. The web address is: <http://www.grad.umn.edu/gsss/>~~

~~Graduate School Catalog which contains detailed information on requirements for obtaining degrees, and detailed descriptions of all upper division and graduate courses offered by departments throughout the University. The web address is: <http://www1.umn.edu/commpub/gradindex.html>~~

~~Class Schedules which detail time, place and instructor for specific courses by semester, as well as registration information. They are available at all bookstores or the web address is: <http://onestop.umn.edu/Courses/schedule.html>~~

~~Minnesota Daily is the official University newspaper. It is published daily during the academic year and three times per week in the summer. The Daily is available in many campus buildings.~~

~~Most departments have a departmental newsletter. Ask at the main departmental office to be put on the mailing list. You will be placed on any MCDB&G newsletter lists.~~

LIBRARIES

~~The University of Minnesota-Twin Cities Libraries, (<http://www.lib.umn.edu/>) with a collection of more than 4 million catalogued volumes, ranks 14th in size among American universities. Included in the system are the Biomedical Library (health sciences); Institute of Technology Libraries (engineering, architecture, mathematics,~~

~~physics, geology), St. Paul Libraries (agriculture, biological sciences, veterinary medicine); and Humanities and Social Sciences Libraries (social sciences, humanities, archives, special collections). In addition to strong comprehensive research collections, the system offers a full range of reference and information services, including specialized reference assistance, data base literature searching, and library user instruction.~~

REC SPORTS FACILITIES

~~The University offers extensive indoor and outdoor athletic facilities and opportunities for use by all students, staff and faculty. Students may purchase reduced price tickets for intercollegiate athletic events. The recreational sports program is designed to provide opportunities for students to participate in a wide variety of competitive and noncompetitive, organized and informal sports activities. Gyms are located in Minneapolis and St. Paul, housing basketball, volleyball and racquetball courts, swimming pools, etc. Outdoor facilities include tennis courts, golf courses, and large fields for several sports. For more information call 612-625-6800 or the web at <http://www.recsports.umn.edu/>~~

HOUSING

~~Information about on- and off-campus housing may be obtained from the Housing and Residential Life, Comstock Hall East, 612-624-2994 or on the web at <http://www1.umn.edu/housing/>~~

HELP!

Resolution of grievances may be sought through the student's adviser, the Director of Graduate Studies, the Department heads, the Graduate School, and the University Senate Judicial Committee.

Grievance procedures relating to academic freedom and responsibility are governed by the University Senate statement on Academic Freedom and Responsibility of December 17, 1970, and the Revised Report of the University Appeals Committee on Academic Freedom and Responsibility of April 18, 1974. As a consequence of these policies each department or program has available a set of operating procedures to deal with both the formal and informal aspects of possible grievance matters. Each department or program has also established a standing committee on grievances to conduct hearings and make recommendations in those cases which reach the formal grievance stage.

In the event that the nature of the potential grievance precludes resolution, graduate students may wish to seek advice from the Graduate School dean's office. There is a Graduate School Grievance Committee, but its function is essentially limited to hearing appeals from department or program grievance committees.

Recent publications speaking to the issue of sexual harassment have attempted to avoid misunderstandings by faculty, students and staff on the definition of sexual harassment and set procedures for filing and/or resolving complaints. The rights and concerns of the complainant and the respondent must be fully assured. To get further information or advice about sexual harassment, contact the Office of Equal Opportunity and Affirmative Action on the Twin Cities campus (419 Morrill Hall, 612-624-9547).

An Office for Students with Disabilities is located in Gateway Building at 200 Oak St. (612-626-1333). The Office protects the rights of disabled people and provides information, referral, advocacy, and accommodations such as sign language interpreters, readers, and academic assistance. <http://disserv3.stu.umn.edu/AG-S/2-0.html>

The University Counseling and Consulting Services provide assistance to those students who wish to learn more about themselves as they develop in an educational setting. Counseling services include the areas of academic or educational decisions, vocational or career planning, personal or family problems, marital relationships, and other concerns. Assistance is offered to develop reading and study skills. They are located in 199 Coffey Hall (612-624-3323) and 109 Eddy Hall (612-624-3323) - <http://www.ucs.umn.edu/> in Mpls and for St. Paul

Counseling and advisory services are provided for students and scholars from other countries by the Office of International Student and Scholar Services in 190 HHH Center on the Minneapolis West Bank campus (612-626-7100). This office provides assistance to those seeking information about visa regulations; federal, state and local regulations governing foreign nationals; financial aid requirements; English language requirements; and other educational, social and personal problems.

BE INVOLVED

The graduate students have created an organization to provide a forum for graduate students to discuss and make recommendations on matters related to graduate students. Student representation on program and Graduate School committees and at staff meetings is solicited through the Graduate Student Association (GSA).

The Council of Graduate Students (COGS) officially represents within the Graduate School all graduate students. In each program the graduate students may elect one representative to serve on the council. Through COGS these representatives are able to accomplish the following: (a) unite graduate student forces; (b) assimilate, coordinate and disseminate pertinent information; (c) provide student members for Graduate School and University committees; (d) deal with those problems and issues which affect graduate students. The COGS Newsletter, distributed to all graduate students, attempts to keep graduate students informed of Graduate School affairs. <http://www.cogs.umn.edu/text/>

Graduate students are encouraged to participate in a variety of scientific and research activities. A Women in Science group meets regularly. The group brings together faculty and students to discuss scientific problems and concerns relating to their status as women. For detailed information contact Kathryn Hanna (612-625-2788) in the CBS office. <http://www.chem.umn.edu/groups/musier-forsyth/links.html>

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.

In adhering to this policy, the University abides by the Minnesota Human Rights Act, Minnesota Statute Ch. 363, by the Federal Civil Rights Act, 42 U.S.C. 2000e; by the requirements of Title IX of the Education Amendments of 1972; by Sections 503 and 504 of the Rehabilitation Act of 1973; by the Americans with Disabilities Act of 1990; by Executive Order 11246, as amended; 38 U.S.C. 2012, the Vietnam Era Veterans Readjustment Assistance Act of 1972, as amended; and by other applicable statutes and regulations relating to equality of opportunity.

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.

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