

GRADUATE STUDENT HANDBOOK



CONSERVATION BIOLOGY GRADUATE PROGRAM

187 McNeal Hall
1985 Buford Avenue
St. Paul, MN 55108

612-624-7751 (phone)
612-625-5299 (FAX)

consbio@umn.edu

www.consbio.umn.edu

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.

Revised 1 September 2009

TABLE OF CONTENTS

TABLE OF CONTENTS.....	I
PROGRAM VISION, MISSION AND GENERAL INFORMATION	1
PROGRAM ADMINISTRATION AND GOVERNANCE	2
GRADUATE DEGREES AND BASIC COMPLETION REQUIREMENTS.....	2
Master of Science Degree	2
Doctor of Philosophy Degree.....	3
Joint Degree in Conservation Biology and Law	3
The Fisheries and Aquatic Biology Track	3
Minor in Conservation Biology	4
Change of Status from MS to PhD	4
CURRICULUM.....	4
Integrative Courses and Seminars.....	5
<i>Core Sequence</i>	5
<i>Conservation Biology Seminar</i>	5
<i>Contemporary Problems in Conservation Biology</i>	6
Additional Course Requirements for the Fisheries and Aquatic Biology Track	6
Electives.....	7
<i>Electives in Biological Dimensions of Conservation.</i>	7
<i>Electives in Social Aspects of Conservation Biology.</i>	7
Research Credits	7
DEVELOPING AND FILING A DEGREE PROGRAM	7
REGISTRATION REQUIREMENTS.....	8
All students.	8
Master’s Degree.....	9
Doctoral Degree.....	9
STUDENT ADVISING AND COMMITTEES.....	9
Advisor:.....	9
Student Advisory Committee (SAC):.....	9
Preliminary Oral Examining Committee (doctoral students):	10
Final Oral Examining Committee (doctoral and masters students):.....	10
WRITTEN AND ORAL EXAMS.....	10
Master of Science.....	10
Doctor of Philosophy.....	11
PhD Written Prelim. Exam.	11
PhD Prelim Oral Exam.	11
PhD Final Oral exam.	11

ANNUAL STUDENT REVIEW.....	12
Outstanding Conservation Biology Graduate Student.....	12
Academic Performance and Student Progress	12
THESIS.....	13
PhD Thesis Proposal Form.	13
Thesis Reviewers.	13
Use of Published Work.....	14
SOURCES OF FUNDING.....	14
Assistantships.....	14
UM fellowships.....	14
Outside funding.....	14
Personal funds.....	14
SOURCES OF INFORMATION.....	15
Program web site:	15
Other students in the program:.....	15
The Graduate School:	15
Funding:	15
Advisor:.....	15
Conservation Biology Program Office:	15
Directors of Graduate Study (DGS):.....	16
SPECIAL CONSIDERATIONS FOR INTERNATIONAL RESEARCH.....	16
DEVELOPING YOUR PROFESSIONALISM.....	17
APPENDIX A: PROGRAM CHECKLISTS.....	19
APPENDIX B: SAMPLE COURSE PROGRAMS	20
APPENDIX C: ANNUAL REVIEW	24
APPENDIX D: COMMITTEE REPORTING FORM	26

PROGRAM VISION, MISSION AND GENERAL INFORMATION

The vision of the University of Minnesota Conservation Biology Graduate Program mirrors that of the field of Conservation Biology: a world in which biological diversity and the processes that generate and maintain it are preserved, managed and restored. This vision will be achieved by individuals with research-based knowledge who will promote conservation-based decision making.

The University of Minnesota Conservation Biology Graduate Program will educate leaders in the field of Conservation Biology. Graduates will acquire foundational skills and knowledge, and contribute new knowledge that will inform conservation practices. Because conservation biology problems are inherently interdisciplinary, with solutions that require integration of natural and social sciences, the Program will include faculty and students from across the University of Minnesota, as well as external partners, who are engaged in conservation-related research, outreach and teaching.

Our students will gain foundational **knowledge** in conservation biology; specifically (1) organismal and population biology, (2) ecosystem and landscape ecology, (3) participatory decision-making, policy, and other social processes, (4) ecosystem services, and (5) analysis and interpretation of complex data.

Additionally, our students will gain the **skills** to make informed decisions using the best available information. Because this information is often from disparate sources and has high uncertainty, students will learn to evaluate multiple sides of issues, and understand how to link science to resource management and policy development.

Finally, our students will make cutting edge **contributions** to the field of Conservation Biology as they conduct research on social, economic and biological questions. They will be exposed to exceptional faculty advisors, teachers and colleagues, and other current leaders in the field as they prepare to become the future leaders of the discipline.

The CB Graduate Program is an interdisciplinary program within the Graduate School, not a department. The CB Program was established 1990 and is composed of faculty from more than 17 departments and 5 collegiate units. The College of Food, Agriculture and Natural Resource Sciences (CFANS) serves as the administrative home for the program; accounting and some record-keeping is handled by CFANS. General program administration – including recruitment, faculty and student assistance, and student progress documentation are handled by the CB Program Coordinator whose office is 187 McNeal Hall. The CB Program Coordinator can be reached at 612-624-7751 or consbio@umn.edu The CB Program website also contains useful information for current or prospective students and faculty: <http://www.consbio.umn.edu>

Each CB student should have an office space, a campus address, and phone number. Advisors may have a preference as to where their students are housed. The CB Program has space for about 16 students in 180 McNeal. Please see the Program Coordinator to obtain a desk if space is available. Students who request space in 180 McNeal are expected to use the space on a regular basis or else they may be asked to vacate the space. Students should not maintain two desks on campus.

PROGRAM ADMINISTRATION AND GOVERNANCE

Graduate faculty in the CB Program contribute to the program by teaching CB courses, advising CB students, serving on graduate student examining and Student Advising committees, or serving on CB program committees. New graduate faculty members are added to the program by nomination by any CB faculty member and are approved by the CB Steering Committee. A current list of CB graduate faculty members can be found on the program website. The graduate faculty has primary responsibility for administration of the program through meetings held at least once a semester and called by the Director of Graduate Studies (DGS).

The DGS is responsible for the daily administration of the program and for communication between the Graduate School and the CB faculty and students. The DGS chairs the Steering Committee and oversees activities of all three standing committees (as an ex officio member of the Admissions and Prelim Committees).

Three standing committees are responsible for governing the CB program: the Steering Committee, the Admissions Committee, and the Preliminary (Prelim) Exam Committee. The Steering Committee is comprised of seven faculty members (DGS, preceding DGS, Prelim Chair, Admissions Chair, Fisheries Track Coordinator, two at-large) and one student member (elected by the students). The Steering Committee brings significant policy issues to the faculty at large, assists the DGS with administering funds, makes policy decisions between faculty meetings, recommends and nominates candidates for DGS and other committees, and forms ad hoc committees as needed.

The Admissions Committee develops, reviews and maintains application procedures, solicits applications, recruits students to the program, reviews applications for admission to the program, seeks advisors for applicants, selects and nominates prospective students for Graduate School Fellowships, and recommends students for financial support from other sources. The Admissions Committee comprises 3-4 faculty appointed by the DGS.

The Prelim Committee administers the written preliminary examination for doctoral students. This committee facilitates the formation of student groups, provides each group with directions needed to prepare for the written exam, is responsible for CBio 8095, reviews the paper and generates the exam questions, and evaluates the exam responses determining the final outcomes. The Prelim Committee consists of four faculty members (with representation from both the natural sciences and two from the social sciences).

GRADUATE DEGREES AND BASIC COMPLETION REQUIREMENTS

Students at the University of Minnesota can pursue several degree programs in CB: Master of Science (MS), Doctor of Philosophy (PhD), or joint Juris Doctor (J.D.) in Law and an MS or PhD in CB. Any of the CB degrees can be pursued in the Fisheries and Aquatic Biology track. Master's and PhD students in other degree programs can also minor in CB.

Master of Science Degree

Two types of master's degrees are offered: Plan A, involving a thesis, and Plan B, with more emphasis on coursework and one or more independent projects. The Plan A requires a minimum of 14 semester credits in the major field, 6 credits in one or more related fields outside the major, and 10 master's thesis credits. Plan A Master's students must complete a research

thesis, following all requirements designated by the Graduate School. Examples of Master's thesis topics are listed on the CB program website.

Plan B course requirements include 14 credits in the major and 6 in related outside fields; plus an additional 10 elective credits, chosen in consultation with the adviser. Plan B Master's students must demonstrate familiarity with the tools of research or scholarship in their major field, the ability to work independently, and the ability to present the results of their investigation effectively, by completing at least one Plan B project. The Plan B project should involve a combined total of approximately 120 hours (the equivalent of three full-time weeks) of work. The advisory committee specifies both the nature and extent of the options available to satisfy this requirement, subject to approval by the DGS. The Plan B project must be satisfied independent of the courses in the student's program.

MS students have the option of completing a minor in another field, e.g., statistics or ecology; see the DGS of those programs for requirements

All students must pass a comprehensive final oral examination which is administered by a committee appointed by the Graduate School, including at least two faculty from the major field and one from the minor or supporting field. Typically, the Master's program takes from 2-3 years.

Doctor of Philosophy Degree

General requirements for the PhD are explained in the Graduate School Bulletin (www.grad.umn.edu/Current_Students/degree_completion/doctoral/index.html). The PhD program requires a minimum of 12 credits completed in a single minor or supporting field, 24 thesis research credits, and a written thesis. There is no minimum number of course credits outside the minor that must be taken. All students must pass a written exam, a preliminary oral exam, and a final oral exam (the thesis defense). The written preliminary examination should be taken no later than 2.5 years after beginning the program. The preliminary oral examination should be taken within the first semester after passing the written examination. Preliminary examinations should be taken before significant time has been spent on thesis research. (PhD students are required to take the core courses which amount to 10 credits (includes 3 CB seminars and prelim seminar).

The heart of graduate education for the PhD in CB is extensive research under the supervision of one or more members of the graduate faculty. This research will be guided to promote submission of manuscripts to peer reviewed journals. Examples of PhD dissertation topics are on the CB program website. A thesis defense is required for completion of the degree. Generally a PhD should be completed in 3-5 years.

Joint Degree in Conservation Biology and Law

Students may enter the Joint Degree Program in two different ways. They may apply simultaneously to both the Law School and the CB Program, or they may begin one program and apply for the second degree during their first or second year. The Law School and the Graduate School each accept 12 semester credits transferred from classes taken in the other School, thereby reducing the total number of required credits by 24. In addition, the MS thesis or PhD dissertation satisfies the third-year writing requirement for the Law School.

The Fisheries and Aquatic Biology Track

Three quarters of the global ecosystem is water and most is a global commons. Many biologists and economists argue that freshwater is one of the most critical global resources and that the functional integrity and biodiversity within fresh water and marine ecosystems are highly

threatened. The Fisheries and Aquatic Biology Track is available for MS, PhD, and joint degree students wishing to emphasize this concentration within a CB major. The track name can be indicated on the student's transcript (this is optional) and may be useful to the graduate for obtaining jobs with many federal and state agencies where such expertise is specified in job announcements or hiring criteria. The track designation clearly indicates that the student has specialized coursework and research or project experience leading to expertise in fisheries or aquatic biology. Combined with a typical undergraduate degree in biology or natural resource science, careful selection of courses in the graduate program will satisfy the educational requirements for professional certification by the American Fisheries Society. Students in the track must be advised or co-advised by a faculty member affiliated with the track. Request for admission to the track may be made during the application process or any time after the student is admitted to the CB Graduate Program. Students in the track must meet all requirements for the MS or PhD in CB.

Students who designate this track will be expected to work closely with their Student Advisory Committee (SAC) to develop an appropriate course of study. The Track Coordinator will review each student's academic program to examine how Track expectations are met and forward it with a recommendation to the DGS for approval.

Minor in Conservation Biology

A minor for Master's Plan A and Plan B students in other programs may be earned by completing FW 8452 and CBio 8004 and participating in one semester of the CB seminar (CBio 8001). A PhD minor for students in other graduate programs may be obtained by completing the two core CBio courses (FW 8452 and CBio 8004), participating in two semesters of the CB seminar (CBio 8001), and taking four credits in electives approved by the CB DGS.

Change of Status from MS to PhD

Students who enroll as an MS student may petition to have their status changed to be a PhD student only through the following process. Prior to requesting a change of status, students must have a student advisory committee established and have convened this committee to consult with them about changing to a PhD. The committee should review the student's academic record and determine their readiness to pursue the PhD. The student must develop a dissertation research proposal (about 5 pages in length) that meets with the approval of both the advisor and committee. When the Change-of-Status request is made to the Graduate School, the student should submit a copy of the approved proposal to the DGS and the advisor should send a short letter of endorsement to the DGS. The decision to grant the change in status will be made by the DGS, in consultation with the admissions chair, and will be based on academic progress to date, the quality and scope of the proposal, and recommendation from the advisor. This process does not apply to students who were first admitted to the PhD that opt to complete the MS first.

CURRICULUM

The CB curriculum recognizes that the field of conservation biology requires a multidisciplinary approach. It is designed to give students the scope to develop individualized programs (see Appendix B for examples) that span the full range of disciplines needed to accomplish conservation. To understand the complex array of biological, economic and social dimensions of conservation, a core sequence is required for all students during the first year. While taking the sequence, students will develop graduate programs to fit their individual needs

and participate in a seminar that focuses on understanding the interdisciplinary nature of the program.

The program assumes that students will enter with undergraduate training that satisfies all the prerequisites for the required graduate coursework in one of the many academic dimensions of conservation biology. Those entering without an appropriate background in biology will be expected to complete the necessary prerequisites early in their graduate program. At a minimum, students will be expected to have an advanced undergraduate level course in general ecology. This deficiency needs to be remedied in the first year of a student's program.

Integrative Courses and Seminars

The following courses are required for all students in CB. The content of these courses addresses both biological and human dimensions of conservation biology.

FW 8452	Conservation Biology	3 credits (Fall)
CBio 8004	Econ. & Social Dimensions of Conservation Biology	3 credits (Spring)
CBio 8001	Conservation Biology Seminar	1 credit

All students are also required to take one graduate level course in statistics and complete bioethics training (held during seminar sessions and core courses). Bioethics training is a Graduate School requirement and must be completed once during a student's degree program.

PhD students need to take 2 additional credits of CB8001 as well as:

CBio 8095	Contemporary Problems in Conservation Biology	1 credit
-----------	---	----------

Registration for CBio 8095 is required to prepare for the written preliminary examination. All doctoral students planning to take their preliminary written and oral exams in a given academic year will take this seminar together, under the guidance of a faculty member. After successfully completing this seminar, students may be eligible to take the written preliminary exam.

Core Sequence (FW 8452, CBio 8004). Students are expected to enroll in FW 8452 during their first fall semester and CBio 8004 during the first spring semester of their graduate program to foster a sense of community among newly enrolled CB students and serve as a basis for thesis development. CB provides an overview of the biological and human dimensions of this discipline. It serves to bring students from a variety of backgrounds to a common level of understanding of critical issues and concepts in the field. Economic and Social Dimensions of Conservation introduces students to basic economic and social science principles that are applicable to the wide range of problems studied in FW 8452.

Conservation Biology Seminar (CBio 8001). Students are expected to attend CB seminar all semesters they are in residence. The seminar constitutes a major intellectual forum for this interdepartmental graduate program and involves presentations by external speakers, faculty and graduate students of the CB program. Students are encouraged to use this seminar as the venue for their thesis proposal, research progress reports, or any topic of relevance to conservation biology. By the end of their graduate programs, MS students must make one presentation and PhD students, two presentations in this seminar. FAB-track PhD students should make at least one presentation in CBio 8001 and another arranged with their advisor.

All MS students must register twice for CBio8001 for 1 S/N credit; FAB track students can substitute 1 semester of FW 8200. PhD students must register for 3 semesters of CBio 8001; FAB-track students must take 1-2 semesters of FW 82000 which can count towards this requirement. Students do not need to be enrolled in CBio 8001 during the semester they make presentations. Students who register for the seminar should plan on attending all scheduled meetings. One unexcused absence per student will be permitted during the semester. If a student anticipates missing more than one class session, he/she should ask permission of either the Program Coordinator or the DGS for waiver of the "one miss" rule. Students who do not follow these guidelines will not receive credit for CBio 8001.

Contemporary Problems in Conservation Biology (CBio 8095). All PhD students planning to take their preliminary written and oral exams in a given academic year take this seminar together, under the guidance of a faculty member. Students are required to consult with their advisor prior to enrolling for this course and request that the advisor notify the prelim committee chair in writing (email) that the student is ready to take the written preliminary exam. Students taking the written prelim exam must file their PhD program form with the Graduate School by the time they register for CBio 8095. Exceptions to this will only be approved under unusual circumstances: the student should petition the DGS by sending a letter co-signed by the PhD advisor.

At a minimum, students should have completed the core sequence prior to enrolling for CBio 8095. The preliminary written course covers 1 semester. The first 10 weeks of the semester are spent completing a comprehensive review of an important conservation biology issue. During this time the students (with advice from the faculty member) share in writing and coordinating the editorial process to produce a publishable document on the topic. When this paper is finished, students may be eligible to take the day-long written exam. The written exam is graded by a preliminary exam faculty committee. Students must pass this written exam before they can schedule the individual oral preliminary examination.

Additional Course Requirements for the Fisheries and Aquatic Biology Track

In addition to the course requirements for the CB major, students in the Fisheries and Aquatic Biology track are expected to have coursework leading to expertise in fisheries or aquatic biology. Specific courses are based on the career goals, interests, previous experience, and undergraduate coursework of the student. In most cases, a student takes at least three courses from the following list. These courses should be selected with approval of the student's advisor and SAC.

EEB 4601	Limnology	3 cr
ENT 5361	Aquatic Insects	3 cr
FW 4136	Ichthyology	3 cr
FW 4401	Introduction to Fish Physiology and Behavior	3 cr
FW 5455	Sustainable Aquaculture	3 cr
FW 5601	Fisheries Population Analysis	3 cr
FW 5604	Fisheries Ecology & Management	3 cr
FW 8448	Fishery Science	3 cr
FW 8459	Stream and River Ecology	3 cr
FW 8465	Fish Habitats and Restoration	3 cr
NRES 5061	Water Quality: Mgmt. of a Natural Resource	3 cr
NRES 5575	Wetlands Conservation	3 cr

Other advanced courses or colloquia on fisheries or aquatic biology, but not listed here, may also satisfy needs of students in the track. In addition master's students are required to enroll for at least one semester and doctoral students for two semesters of FW 8200 Seminar for 1 credit.

Electives

CB Students choose electives in consultation with their advisor and/or Student Advisory Committee. Given the multidisciplinary nature of the field of conservation biology, all student programs are expected to reflect coursework or knowledge in both social and biological sciences. Additionally, students are encouraged to develop depth in their area of greatest interest. Sample Course Programs are provided in Appendix B.

Electives in Biological Dimensions of Conservation. Students in CB need to have a good understanding of ecology, population and organismal biology. Ecological implications of issues and policies involving species diversity, endangered species concerns, and habitat protection all require a basic understanding of ecological principles and their associated models. Students in the program must be prepared to deal with such issues through formal academic training. NOTE: Students lacking a background in biological sciences sufficient to enroll in graduate-level courses should take a graduate level general ecology course prior to fulfilling the course requirements in this section of the curriculum.

Electives in Social Aspects of Conservation Biology. Problems in conservation biology and their potential solutions occur within diverse societal contexts. These contexts are defined by social institutions and processes such as economics, policy and law, politics, cultural identities, history, values and ethics, and spiritual traditions. Courses in this section of the curriculum analyze societal contexts and/or describe the operations of specific institutions. For example, students whose career goals include a desire to influence conservation policy need to understand workings of the public policy framework in which economics and law play a critical role. It is important that every graduate program include courses in the social sciences.

Research Credits

MS students must register for 10 thesis credits (CBio 8777) and PhD students must register for 24 dissertation credits (CBio 8888) as part of their program. These are Graduate School requirements. Doctoral students cannot register for CBio 8888 until the semester after they successfully complete their oral preliminary examination. Graduate students must register for 6-14 credits/semester to be considered full-time; students generally take 6-9 course credits each semester. The CB program encourages students to enroll for research credits up to the maximum of 14 credits each semester they take courses. MS students can enroll in CBio 8777 throughout their program; PhD students should enroll in CBio 8666 (Doctoral Pre-Thesis credits) until they have passed their preliminary exams. Pre-thesis credits and research credits beyond those required by the Graduate School cannot be used to meet other degree requirements.

DEVELOPING AND FILING A DEGREE PROGRAM

The student is required to develop a graduate degree program in collaboration with the principal advisor and a student advisory committee (SAC) for both the MS and PhD degrees. A student's "program" is the list of courses that the student will complete to receive his/her degree. The list is recorded on the Degree Program form, signed by the advisor(s) and the DGS, and submitted to the Graduate School. This is the responsibility of the student. Students begin the program approval process by submitting their forms (signed by their advisor) to the Program

Coordinator (not DGS). The Program Coordinator will review the form to ensure all requirements are met. The DGS will not sign the form without this program review step. For MS students, the program should be filed by the end of their first year. For PhD students, the program must be filed before the student can take any preliminary exams or the final defense. The Graduate School requires that students should submit their completed degree program forms to the Graduate School at least the semester before the written prelim and two semesters before the preliminary oral examination.

The degree program form is available from the Graduate School, 316 Johnston Hall, or online at www.grad.umn.edu/forms. The form should list all coursework, completed and proposed, that will be offered in fulfillment of degree requirements in the major field and in the minor field or supporting program, including any transfer work. At least two-thirds of the total number of course credits included on any degree program form must be taken A-F. The members of a student's preliminary oral examining committee also are listed on this form.

Students may request to transfer graduate course credits earned at another graduate institution by including the courses on the proposed degree program form. Graduate credits earned at other recognized graduate institutions may be applied to MS or doctoral degrees if the coursework is graduate level and was taught by faculty authorized to teach graduate courses. 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.

The Degree Program Form should be filed with the Graduate School by the end of the second year in residence. Before the program is approved by a DGS, it should be reviewed by the Program Coordinator. Once approved by the Graduate School, the program must be fulfilled in every detail to meet graduation requirements and before the final oral examination can be scheduled. No changes can be made except by petition. Program changes should be requested by completing a Graduate School petition form.

REGISTRATION REQUIREMENTS

The Graduate School's handbook provides detailed guidelines for degree and registration requirements. Students who plan to transfer credits from other institutions to complete degree requirements should consult this on-line handbook: <http://www.catalogs.umn.edu/grad/index.html>. Only general information is provided below.

All students.

The Graduate School requires graduate students to register EVERY SEMESTER. If a student only needs to register to meet the Graduate School's registration requirement, there is a no-credit, no-fee registration option – Grad 999. See details at http://www.grad.umn.edu/Current_Students/registration. Students not registered every fall and spring term are considered to have withdrawn and their Graduate School records are deactivated. Those who wish to resume graduate work must request readmission to the Graduate School to reactivate their status.

Graduate students must register for 6-14 credits to be considered full-time. Advanced master's and advanced doctoral candidates (i.e., students who have completed all their program coursework and required thesis credits, but still are working full-time on the research or writing of their thesis, papers, or dissertation) may be eligible for "Full-time with one credit registration" courses that enable them to be certified as "full-time" students when registered for one credit. See details at: http://www.grad.umn.edu/Current_Students/registration/.

All graduate students must register before the first day of the term to avoid a late registration fee. Be aware that a typical assistantship or tuition fellowship only pays for 14 credits, and these are for degree program courses. Students will be billed for credits over 14 and for courses not related to their field of study (e.g., martial arts and dance).

Master's Degree.

Master's degree students are required by the Graduate School to complete at least 60 percent of the coursework for their official degree programs (excluding thesis credits) as registered University of Minnesota Graduate School students. With approval of the adviser, DGS in the major, and Graduate School, transfer coursework may make up the remaining 40 percent (maximum) of the degree coursework. Work to be transferred must be graduate level (post baccalaureate) and have been taught by faculty authorized to teach graduate courses. It is the student's responsibility to provide appropriate course documentation supporting proposed transfer credits to the program. Courses taken before the awarding of a baccalaureate degree cannot be transferred. See details at: <http://www.catalogs.umn.edu/grad/gen/masters.html>.

Doctoral Degree.

No more than 12 credits can be transferred from another institution. See the Graduate School Handbook for more detail.

Student Advising and Committees

Advisor:

An advisor will be identified through the admission procedure. The advisor is the student's primary contact at the University. It is very important that the student and their advisor work well together. On rare occasions students discover that they are not well matched with their advisor for various reasons. If a change is necessary, that change must be approved by the Director of Graduate Studies (DGS) and the new advisor in consultation with the previous advisor and the student.

The advisor chairs meetings of the SAC and makes final decisions. She/he also assumes advisory and administrative responsibility for an individual student's program, including recommendations regarding program content and student progress. Advisors for students in the Fisheries and Aquatic Biology track must be members of this track.

Student Advisory Committee (SAC):

The Student Advisory Committee (SAC) must have members from more than one department. The student is responsible for assembling the Student Advisory Committee, in consultation with the advisor. A SAC for an MS student is composed of the student's advisor and two other faculty members who can give advice on the student's professional direction. One of these should be on the CB faculty; the other should represent a different field. For PhD students, the SAC includes three faculty members other than the advisor, 2 from CB and 1 from another field. The purpose of the SAC is to assist the student to develop a degree program (e.g., list of coursework) and provide advice on research. The student's principal advisor is responsible for helping the student to identify faculty representing both the biological dimensions and social dimensions of conservation biology to serve on the SAC.

Typically the advisor assists new graduate students in selecting courses for their first semester; the SAC should meet during the first semester of a student's residency to assist in selecting courses for the next term and to offer some general guidance for research and the degree program. The SAC should be convened in the second semester to provide input the research proposal and to finalize the degree program (see the section on filing a degree

program). Students should develop a research proposal (with literature review) for SAC review. This proposal is developed in close coordination with advisor and is provided to SAC members prior to the meeting that occurs in the second semester.

The student must schedule a meeting of the SAC at least once a year to review his/her progress. In general, the membership of the SAC does not change during a student's program. However, if the direction of student's research changes and/or if the advisor and a SAC member agree that another faculty can better assist the student, a change can be requested. These changes need to be approved by the DGS and Graduate School.

The SAC often serves as the Master of Science Examining Committee, the PhD Preliminary Oral Examining Committee, or the Final Oral Examining Committee (although these are all formally appointed by the Graduate School).

Preliminary Oral Examining Committee (doctoral students):

The Prelim Oral Examining Committee conducts the Preliminary Oral Exam. The examining committee has a minimum of four members: three (including the student's adviser) from the major field and one from the minor field or supporting program. All assigned members must be present at the preliminary oral examination; the absence of any member results in an invalid examination. If substitutions on the examining committee are necessary, the advisor or DGS must request approval from the Graduate School. All students scheduling their preliminary oral examination should contact the Graduate School to obtain the necessary forms.

Final Oral Examining Committee (doctoral and masters students):

The final oral examining committee is formed in the same way as the preliminary oral examining committee. However, members of the two committees need not be the same. The committee must consist of at least three members for the MS and four members for the PhD : two (MS) or three (PhD) (including the student's advisor) from the major field and one from the minor field or supporting program. At least one committee member from the minor field or supporting program should represent a graduate program and an academic unit other than that of the student's major.

Although the student's advisor serves as a member of the final oral examining committee, another member of the committee is designated as the chair and functions in this capacity at the final oral examination. The chair must be a full member of the graduate faculty and may be from either the major field or the minor field or supporting program. All committee members must be present at the examination; the absence of any member results in an invalid examination. If substitutions are necessary, the advisor or DGS must request approval from the Graduate School. All students preparing for their final oral examination should contact the Graduate School to receive detailed directions about degree completion procedures.

WRITTEN AND ORAL EXAMS

Master of Science.

Students electing either a Plan A (thesis) or Plan B (non-thesis) program are required to pass a final oral examination. The exam is administered by a committee identified by the adviser and student and approved by the DGS and Graduate School. The final examinations cover the major field and the minor or related fields, and may include any work fundamental to these fields. The final oral for the master's degree is conducted as a closed examination, attended by only the student and the examining committee. In general, MS Plan A examinations often are primarily a thesis defense whereas Plan B examinations will focus more on general information from coursework. Immediately prior to the examination, CB students almost always present a

public seminar on their thesis. The examining committee must be present during this seminar because a separate presentation will not occur during the closed session.

Doctor of Philosophy.

Students in the PhD program are required to pass a written exam, a preliminary oral exam, and a final oral exam. The written prelim exam, explained below, should be taken no later than 2.5 years after beginning the program. Preliminary examination groups will be assembled without regard to track designation. The Graduate School requires that the prelim oral must take place at least one academic term (15 weeks) before the final oral defense.

PhD Written Prelim. Exam.

The written preliminary examination, required for PhD students, is a two-step process. Each year, all students desiring to take the exam identify themselves to the Prelim Committee and participate in a process to select a topic for study during the semester. Students enroll in CBio 8095 and produce a group paper. Members of the prelim committee review the paper and write questions for the written preliminary examination based on the concepts covered in the paper. The written preliminary examination is an individual exam that is taken in one day.

The goals of the Written Preliminary preparatory course (CBio 8095) and exam are:

- To provide experience in the kind of cooperative group work that conservation biologists will typically encounter in their post-graduate professional lives.
- To create an environment in which students interact with each other and prepare jointly for the written examination.
- To build on the diverse backgrounds of the students and take advantage of the broad nature of the subject of conservation biology.
- To provide experience in writing on demand, which conservation biologists typically encounter in their post-graduate professional lives.
- To ascertain the extent to which a student demonstrates competence and effectively communicates on topics critical to conservation biology.

PhD Prelim Oral Exam.

The preliminary oral examination is taken after passing the written examination and before the end of that academic year. The preliminary oral examination is administered by the student's oral examining committee that is approved by the DGS and the Graduate School. As stated by the Graduate School 'This exam will cover the major field, the minor or supporting program and any work fundamental to these areas including possible plans for thesis research. Specialized training and knowledge related to specific tracks can be addressed in this exam. It is the responsibility of the student to schedule the preliminary oral with the examiners and with the Graduate School, 316 Johnston Hall, at least one week in advance.

PhD Final Oral exam.

Each doctoral student is required to successfully defend his/her thesis in a final oral examination within five calendar years after passing the preliminary oral examination. To be eligible for the final oral examination, a student must have completed all coursework listed on the official doctoral degree program form; must have passed both the written and oral preliminary examinations; must have an approved thesis proposal on file with the Graduate School; must have maintained active status; and must have satisfied the thesis credit requirement. In addition, the thesis must have been certified by the readers as ready for defense. The student must schedule the examination at least one week in advance with both

the committee and the Graduate School. Scheduling for the preliminary oral exam with the graduate school should be done online at http://www.grad.umn.edu/current_students/finalschedule/

The final oral examination consists of a seminar in which the candidate presents the thesis and to which the scholarly community is invited. The seminar may take place only after the thesis has been judged ready for defense. A closed meeting between the candidate and the appointed examining committee immediately follows the thesis presentation. The examination is limited to the candidate's thesis subject and relevant areas and will not exceed three hours. The candidate is then excused and a vote is taken on whether the candidate passed the examination.

ANNUAL STUDENT REVIEW

The Graduate School requires that each graduate student be evaluated by their Program at least once a year. The CB program evaluation is a form filled out by the student and signed by their advisor(s) (Appendix C). For CB students, the purpose of this annual review is two-fold: to document the accomplishments of the graduate students in the program and to identify students who may not be making adequate progress towards their degrees. The completed forms are reviewed by the DGS. A compilation of accomplishments is included in reports and proposals to the Graduate School.

Outstanding Conservation Biology Graduate Student

Based on review of annual accomplishments of all students, up to 5% of the students will be given "Outstanding Conservation Biology Graduate Student" awards. These awards will honor truly superb performance in research fundraising, research publication, teaching, and/or outreach. These awards will be announced the following fall at the first Conservation Biology seminar of the year. Students can receive these awards more than once. Accomplishments of MS and PhD students will be evaluated separately, using criteria appropriate to their degree programs.

Academic Performance and Student Progress

Students are expected to receive grades of B or better, for an overall GPA of at least 3.0. In very rare cases students have problems with a course. Do not wait until the course is finished to inform the advisor/DGS of a poor grade; often they can help before it is too late. An instructor may give an 'incomplete' when in the instructor's opinion there is a reasonable expectation that the student can successfully complete the work of the course. An incomplete remains on the transcript until the instructor replaces it with a final A-F or S-N grade. Course instructors may, at their discretion, establish a time limit for the removal of incomplete grades. CB students cannot carry more than 5 credits of incomplete grades at a time. If a student has more than 5 credits of incomplete grades for a semester, a hold can be placed on student's registration.

A student not making adequate progress can be one who has not maintained minimum academic performance, who has not filed a degree program form and/or not met with their SAC, who does not have an advisor, and/or who has not completed preliminary or final examinations within accepted time-frames (see Appendix A). Students found not to be making adequate progress towards their degree will receive a written warning from the DGS articulating the expectations that must be met by the end of the next semester or as otherwise indicated by the DGS. If those expectations are not met, a second warning letter will be sent to the student the following semester identifying the consequences to their financial support and continuation in the program. If expectations are still not met by the end of the next semester, a hold is placed on the student's registration and they receive a third and final warning identifying the

expectations that must be met before the student is allowed to continue in the program. The advisor receives copies of all correspondence between the DGS and student.

THESIS

The thesis or dissertation is typically the most significant part of a graduate student's program – both in time and intellectual investment. Graduate students need to make substantial progress planning their thesis during the first year of their program. A thesis proposal combined with a draft coursework program is often reviewed by the SAC in a student's second semester – and always before data collection begins. When embarking on developing a thesis proposal, be sure to meet periodically with your advisor to consider your ideas. Be sure to set realistic goals, develop an appropriate time line or schedule, and read other examples of completed theses (especially those that were published in academic or professional journals). The University of Minnesota library owns a copy of every thesis and dissertation completed here- so there is no shortage of available examples! Be sure your thesis research is focused, is organized around a set of questions, and uses appropriate methods. Rely on your committee to give you advice on research approaches – but remember it is your project and you will need to generate ideas and proposals for them to react to. Be sure to select committee members whose expertise will be relevant to your thesis research and who will give you valuable critique. As you develop your thesis proposal, think about how your work fits into the rest of what is going on in conservation biology worldwide and how your proposed research fits in and contributes to advancing the field. Be sure to follow graduate school requirements on thesis content and structure; see http://www.grad.umn.edu/current_students/forms/g16.pdf

PhD Thesis Proposal Form.

At the time of submission of the doctoral program, or not later than the first semester after passing the preliminary oral examination, students must file the thesis proposal form with the Graduate School, 316 Johnston Hall. The form must include the proposed thesis title and a thesis proposal, about 250 words in length, describing the research to be undertaken and the methods to be employed in carrying it out. Changes in the wording of the thesis title may be made without special approval, but changes cannot be made after the final thesis copy is submitted to the Graduate School. If substantive changes are made in the nature of the thesis research itself, the student must submit a revised thesis proposal immediately. A thesis proposal approved by the Graduate School must be on file before the reviewers report form can be issued to the student.

Thesis Reviewers.

All members of the final oral examining committee read the thesis. For Master's theses, the entire committee must be unanimous in certifying that the thesis is ready for defense, as indicated by their signatures on the thesis reviewers report form. For PhD dissertations, only those designated as thesis reviewers sign the report form certifying that the thesis is ready for defense. The designated reviewers for PhD dissertations consist of the adviser and at least two other members of the final oral examining committee. Part of this group of reviewers should come from outside of the graduate program's thesis advisory committee. To permit faculty sufficient time to read the thesis and decide whether it is ready for defense, all members of the examining committee must have at least two weeks to read the thesis.

Use of Published Work

The thesis or dissertation may include materials that students have published while a graduate student at University of Minnesota provided the research, was carried out under the direction of the graduate faculty and approved by the advisor for incorporation into the thesis. Such publication is welcomed as the best demonstration of quality in a student's research. Instructions for the preparation of the thesis should be obtained from the Graduate School, 316 Johnston Hall, or online at www.grad.umn.edu/forms.

SOURCES OF FUNDING

Assistantships.

The typical CB student has a Graduate Assistant position – either as a Research Assistant (RA) or as a Teaching Assistant (TA). The pay range for Graduate Assistants varies by department but is typically \$15,000 to \$18,500/year for a 50% appointment. In addition, Graduate Assistants receive comprehensive health and dental insurance and are eligible for tuition benefits—a 50% assistantship (20 hours/week) results in a 100% tuition waiver. Out-of-state residents who have worked 2 semesters as a graduate assistant are eligible to receive a maximum of 4 semesters of resident tuition rate once they no longer are graduate assistants.

UM fellowships

A few first-year and fourth-year CB students are nominated each year for University of Minnesota Graduate Fellowships. Recipients of this fellowship receive a stipend comparable to a 50% assistantship for the academic year, full tuition, and comprehensive health insurance and dental care. The Graduate School also offers several endowed fellowships. Deadlines and forms for application are on the Grad School web page at www.grad.umn.edu. The MacArthur Program also offers fellowships for both incoming and current graduate students. See their web site at <http://www.icgc.umn.edu/Fellowships/fellowover.htm>.

Outside funding

The ability to successfully obtain grant funds for research is extremely important for professional conservation biologists. Thus, all students are expected to actively seek financial support for their research with the help of their advisors. Each year, CB students apply for and are awarded fellowships from organizations outside the University of Minnesota. For example, in the past, CB students have been awarded fellowships from agencies such as the National Science Foundation, Environmental Protection Agency, and the National Security Council. In addition, there are hundreds of smaller grant competitions. Students should seek advice about potential funding sources from their advisors, fellow graduate students, and the Program DGS. Grant competitions also are advertised through emails on the cb-student list server, posted fliers, in the CB newsletter, and on the internet.

Personal funds.

Sometimes students enter the program on personal support. For example, some students are employed and want to continue to work part time and go to school. Occasionally, students enter the program using student loans or other personal funds.

SOURCES OF INFORMATION

Program web site:

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

Other students in the program:

The students have a group email. It is very appropriate to send out a general message regarding program issues such as, "has anyone taken X course?" Once a response is received, students are asked to continue the discussion privately. Do not use the group email for personal issues (e.g. selling furniture, caring for pets, seeking roommates) to avoid overloading the system with material that will have limited interest.

The Graduate School:

The Grad School provides information on anything having to do with the "nuts and bolts" of the degree. They provide forms for filing the program, thesis title, written and oral examinations, etc. Most of these forms are on their website (<http://www.grad.umn.edu/>). Be sure to read a copy of the UMN Graduate Bulletin about degree requirements that apply to you (<http://catalogs.umn.edu/grad/index.html>). A very helpful one-page document available from the Grad School outlines the general process and procedures for obtaining a degree; see http://www.grad.umn.edu/current_students/.

Funding:

Recipients of Graduate School Fellowships or another fellowship administered through the Graduate School should check in with the Grad School fellowship office in Johnston Hall to make sure all paperwork is in order and to learn about the expectations associated with the fellowship. MacArthur Scholars need to keep in close contact with the MacArthur program office and Nancy Rothman, FWCB, who handles tuition and health insurance.

Students with a Teaching Assistantship (TA) or Research Assistantship (RA) need to determine which department their paycheck is coming from and become acquainted with the payroll staff in that department. Typically the department of the student's advisor will be responsible their payroll.

Advisor:

The advisor is a student's primary contact at UMN. Because of the multidisciplinary aspect of the CB program, about 25% of CB students have 2 advisors. Advisors vary tremendously in their style. Some maintain very close control and contact while others will let students make all decisions. Students should always interact with their advisor regarding course choices and plans for each semester. It is up to the student to keep their advisor informed. On rare occasions students discover that they are not well matched with their advisor for various reasons. It is very important to work well with an advisor. If a student has a problem doing so, or otherwise needs assistance, please see the DGS to help resolve the issue.

Conservation Biology Program Office:

The Program Office is in 187 McNeal Hall. The office phone is 612-624-7751, office fax is 612-625-5299 and the program email is consbio@umn.edu. The program website is at <http://www.consbio.umn.edu> .

Directors of Graduate Study (DGS):

The DGS will help solve problems with the grad program and interactions with the Graduate School, advisors, committees, etc. but students should attempt to solve problems through their advisor and the CB Program Coordinator first.

SPECIAL CONSIDERATIONS FOR INTERNATIONAL RESEARCH

From UM Office of International Programs

To protect the health and safety of our students, the University of Minnesota has adopted a series of policies and procedures **requiring** a release and waiver and international health insurance **for all students who go abroad**. This includes study, research, internships, work, and volunteer experiences abroad that are sponsored or endorsed by the University either as part of a group or as individuals. Note that this includes graduate students conducting independent projects abroad.

There are three main components about which you should be aware:

Release and Waiver Form: All students must complete and sign the release and waiver form developed by the Office of the General Counsel. The form is available at:
<http://www.umabroad.umn.edu/healthSafety/index.html>

International Health Insurance: All students are required to obtain the Risk Management-approved international health insurance policy. Information and application forms are available at: <http://www.umabroad.umn.edu/healthSafety/healthInsurance.html>

Education Abroad Suspension Committee: Any faculty member, department, college, or individual student proposing a student program or activity abroad in a country on the U.S. State Department travel warning list [http://travel.state.gov/travel/cis_pa_tw/tw/tw_1764.html] must gain prior approval. The University has created the Education Abroad Suspension Committee to consider these requests and also the suspension of existing programs in countries that are added to the list. Requests should be submitted electronically two months in advance of departure. See guidelines at: http://www.international.umn.edu/travel_warning/

Colleges, departments, and individual faculty and staff who lead programs abroad must ensure that all students meet these requirements.

DEVELOPING YOUR PROFESSIONALISM

You are in this program to obtain a degree and make a difference in global conservation efforts. Taking courses is a very small part of the big picture. You were admitted for this program because we identified you as an individual with great potential to contribute to the stewardship of the Earth's biodiversity. We expect you to give to the program and the profession of conservation biology as much as you plan to take. Several opportunities/responsibilities are listed below. Every single one of these is vital to your professionalism. Post them as a list of goals to achieve and work on every semester.

1. **Attend seminars on campus.** Every day there is some seminar on one of the campuses that has relevance to conservation biology. There is no way to attend them all. Be alert and schedule them into your plans when possible. Pay particular attention to those sponsored by CB, but others will be in departments such as Ecology, Forest Resources, Fisheries and Wildlife, Geography, the Humphrey Institute, etc. You will find your own sources based on your interests. In semesters when you are not signed up for the CB Seminar (8001) for credit you are still expected to attend.
2. **Belong to a professional society** (or several). It is important that you develop these ties early. A natural is the Society for CB. Others may be the American Fisheries Society, The Wildlife Society, Ecological Society of America, the American Ornithologists' Union, etc. Ask your advisor for advice. All of these societies produce professional journals and have annual meetings. They have student rates. Why should you join? There are many reasons (e.g. you will become a member of a group who will be your professional peers after graduation; you will keep up to date on research in your field (through the journal); you will begin to learn the politics of your profession). All of you should decide on a society and become a member by the end of your first semester.
3. **Attend professional meetings.** Every year students attend a number of meetings. If you present a paper, the CB Program often has funds to provide \$300 (in country) or \$400 (international) to help with expenses for one meeting/year. You and/or your advisor will need to cover the rest. To receive support from the CB program you must include the CB Program in your affiliation as listed on your abstract. Presenting at professional meetings is expected of PhD students and highly encouraged at the MS level. The Society for Conservation Biology is a natural meeting to attend, but students attend a diverse selection.
4. **Update your resume/curriculum vitae.** This is your professional record and one of the most important "tools" for obtaining funding while in the program or future employment. Some have highly sophisticated CVs; others are not well prepared. Ask your student colleagues for advice and your advisor to review your CV. You should update it at least once/semester.
5. **Establish an office space at UMN and use it.** Do not hole up at home and deprive yourself of graduate school life. The most important thing you will get from graduate school is your interaction with colleagues, faculty and visiting scholars. Graduate school is not an extension of college; it is a way of life. If you need to study at home, do so, but leave time every day to come and interact through seminars, etc. One of the biggest mistakes new students make is to use grad school only as a route to taking more courses. If you plan only to come to campus, attend class, and go home, you are in the wrong program and field. You need to understand the culture of science and conservation. You need to engage in conversations. You need to develop friendships with your colleagues as they will be critical professional links for you in the future.

6. **Obtain funding for research and graduate training.** Students come into the program with a variety of funding support systems. Some students are almost completely funded. Some have little or no funds other than personal ones. Very few have funds to support their research. Everyone can be funded at some level, but it will take work and creativity on student's part. Obtaining funds for a living stipend, tuition or research is part of being a professional. You need to be continuously alert to sources of funding, no matter how small, because developing a funding record is also important for your professionalism. A good place to start is through the Fellowship Office at the Graduate School. Check out their web site to find information on fellowships available through the UMN. For example, for those of you who plan to do international work, there is a fellowship for research abroad. Also check the Graduate School website for student job postings. There are often good opportunities in other campus programs. The CB Program does not have money to fund students except under very special circumstances so you cannot depend on the program for any regular support. Discuss funding support and options with your advisor.
7. **Publications are important.** You will be judged on your publications for any academic or research-oriented positions you seek (this includes MS students who plan to enter a PhD program as well as people seeing positions at the university level). Publications may be required and will definitely provide an advantage for a number of other positions. Interact with your advisor regarding publications. This is a critical issue, especially for those of you in the PhD program.
8. **Preparing Future Faculty:** This is a very innovative program available through UMN for PhD students who seek employment in academia. PPF is a two-part course. The first course addresses the theory of teaching where students develop a syllabus, teaching philosophy, and learn teaching techniques. The second course is a practicum where students teach either a course or a series of class sessions. Several CB students have been hired by colleges/universities, in part, because they participated in this program. Look for announcements about this program or contact the University of Minnesota Teaching and Learning Center for more information.
9. **Seek Opportunities for Leadership and Community Involvement:** These opportunities can be within the CB Program, the broader university system, or at the regional, national or international level. Some of you already have these connections. Evidence of leadership and "community" involvement is often a criteria for outside funding/fellowships and is definitely a plus when you see employment.

APPENDIX A: PROGRAM CHECKLISTS

All Students:

- All students must have a junior-senior level course in ecology as a requirement for the CB program. Students lacking this course need to make up this deficiency in the first year.
- Students should take the core sequence (FW8452, CB8004) their first year.
- All students must take one graduate course in statistics.
- All students must complete ethics training during their graduate program.
- All students must convene their SAC committee by their second semester: the SAC should review their thesis proposal and their proposed degree program.
- All CB degree programs need to include coursework in both the biological and social sciences.
- All students should convene their SAC once/year throughout their program.
- All students must complete their annual progress report.
- All students should attend the CB seminar regularly, regardless of whether they are registered for the course.
- All students must register every semester throughout their program.

MS Students:

- Students should submit a degree program with no fewer than 30 credits: 14 credits in the major and 6 credits in related fields or a minor. Plan A students should have 10 thesis research credits and Plan B students should have an additional 10 credits of coursework electives.
- Students should file their degree program by the end of their first academic year.
- Students should take the CBio 8001 seminar for credit twice; FAB-track may substitute one credit of FW 8200.
- Students should present in CBio 8001 seminar once.
- Students should publicly present their thesis seminar on campus prior to their final examination and their examining committee should be present.

PhD Students:

- Students should file their degree program by the end of their second academic year, a semester before the written prelim, and 2 semesters before the oral prelim (all conditions need to be met).
- Students should take the CBio 8001 seminar for credit three times; FAB-track may substitute 1-2 credits of FW 8200.
- Students should present in CBio 8001 seminar twice; FAB-track students should make at least one presentation in CBio 8001 and another arranged with their advisor.
- Students must take CBio 8095 the semester they plan to take their written prelims. They must have completed the core sequence prior to enrollment, must have an approved degree program (submitted the previous semester), and must have the permission of their advisor. Students must pass this written exam before they can schedule the individual oral preliminary examination. **N.B.:** *CBio 8095 is a major time commitment. Students need to minimize other courses and research activities during this term.*
- After completion of the written prelim and at least one week before the oral prelim, the Preliminary Written Examination Report must be submitted to the Graduate School.
- The oral prelim must be scheduled one week in advance of the exam and must take place at least 15 weeks before the final oral defense.
- Students submit the thesis proposal form to the Graduate School the term after passing the prelim oral. Students should consult the Grad School Web site for degree completion procedures and deadlines.
- Students must publicly present their dissertation seminar on campus prior to their final examination- their examining committee must be present.

APPENDIX B: SAMPLE COURSE PROGRAMS

MS (Plan A) with General Emphasis

FW 8452	Conservation Biology	3
CBIO 8004	Economic and Social Aspects of CB	3
CBIO 8001	CB Seminar	2
STAT 5021	Statistical Analysis	4
EEB 5321	Evolution of Social Behavior	3
FW 5603	Hab / Reg of Wildlife	3
FW 5003	Human Dimensions of Biological Conservation	3
NRES 5245	Recreation Policy and Landscape Level Planning	3
PA 5131	Conflict Management Theory	3
PA 5253	Participatory Management and Public Involvement	3
	<i><u>Class credits=</u></i>	<i><u>30</u></i>
CBIO 8777	Thesis Credits: Masters	10
	<i><u>Total credits =</u></i>	<i><u>40</u></i>

MS (Plan A) with Biological Emphasis

FW 8452	Conservation Biology	3
CBIO 8004	Economic and Social Aspects of CB	3
CBIO 8001	CB Seminar	2
STAT 5021	Statistical Analysis	4
FW 5603	Hab / Reg of Wildlife	3
EEB 5014	Ecology of Vegetation	4
EEB 5051	Analysis of Populations	3
	<i><u>Class credits=</u></i>	<i><u>22</u></i>
CBIO 8777	Thesis Credits: Masters	10
	<i><u>Total credits =</u></i>	<i><u>32</u></i>

MS (Plan A) with Social Science Emphasis

FW 8452	Conservation Biology	3
CBIO 8004	Economic and Social Aspect of CB	3
CBIO 8001	CB Seminar	2
EEB 5961	Decision Analysis and Modeling	3
BIOL 5407	Ecology	3
PA 5501	Economic Development I	2
PA 5502	Economic Development II	2
FR 4114	Forest Hydrology and Watershed Management	3
FR 5104	Forest Ecology	4
FR 5251	Renewable Natural Resources in Developing Countries	1
	<i><u>Class credits=</u></i>	<i><u>26</u></i>
CBIO 8777	Thesis Credits: Masters	10
	<i><u>Total credits =</u></i>	<i><u>36</u></i>

APPENDIX B: continued

MS (Plan A) - Fisheries and Aquatic Biology Track:

FW 8452	Conservation Biology	3
CBIO 8004	Economic and Social Aspects of Conservation Biology	3
CBIO 8001	Conservation Biology seminar (1 cr may be Fisheries Seminar, FW8200)	2
STAT 5021	Statistical Analysis	4
FW 5601	Fisheries Population Analysis	4
FW 5604	Fisheries Ecology and Management	4
EEB 5136	Ichthyology	4
	<i><u>Class credits =</u></i>	<u>24</u>
CBIO 8777	Thesis credits	10
	<i><u>Total Credits</u></i>	<u>34</u>

MS (Plan B)

FW 8452	Conservation Biology	3
CBIO 8004	Economic and Social Aspects of CB	3
CBIO 8001	CB Seminar	3
EEB 5961	Decision Analysis and Modeling	3
BIOL 4003	Genetics	3
FW4565	Fisheries and Wildlife Ecology and Management	1
ENT 5920	Ethics and Professional Skills	1
EEB 4609	Ecosystem Ecology	3
PubH 5905	Human Nutrition and Health	2
GloS 4801	International Development	4
GloS 4802	Cross-cultural perspective	4
GloS 4803	MSID Country Analysis	4
GloS 4805	International Development Internship	3
EEB 8994	Directed Research	2
	<i><u>Total Credits=</u></i>	<u>39</u>

PhD with Biological Emphasis

FW 8452	Conservation Biology	3
CBIO 8004	Economic and Social Aspects of CB	3
CBIO 8001	CB Seminar	2
CBIO 8095	Contemporary Problems in CB (Prelim)	1
STAT 5302	Applied Linear Regression	4
STAT 5601	Nonparametric Methods	4
EEB 8510	Behavior Seminar	1
EEB 5051	Analysis of Populations	3
FW 8576	Large Mammals	3
FW 5625	Wildlife Handling	3
LA 5202	Landscape Ecology	3
EEB 5965	Decision Analysis	3
	<i><u>Class credits=</u></i>	<u>33</u>
CBIO 8888	Doctoral Thesis Credits	24
	<i><u>Total credits =</u></i>	<u>57</u>

APPENDIX B: continued

PhD with Social Science Emphasis

FW 8452	Conservation Biology	3
CBIO 8004	Economic and Social Aspects of CB	3
CBIO 8001	CB Seminar	2
CBIO 8095	Contemporary Problems in CB (Prelim)	1
STAT 5021	Statistical Analysis	4
STAT 5302	Applied Linear Regression	4
STAT 5601	Nonparametric Methods	4
NRES 5245	Recreational Policy and Landscape Level Planning	3
EEB 5965	Decision Analysis	3
FW 5003	Human Dimensions of Biological Conservation	3
PA 5131	Conflict Management Theory	3
ANTH 5116	Ecological Anthropology	3
		<u>Class credits= 36</u>
CBIO 8888	Doctoral Thesis Credits	24
		<u>Total credits = 60</u>

PhD - Fisheries and Aquatic Biology Track

FW 8452	Conservation Biology	3
CBIO 8004	Economic and Social Aspects of CB	3
CBIO 8001	CB Seminar	1
CBIO 8095	Contemporary Problems in CB (Prelim)	1
EEB 4601	Limnology	3
EEB 5961	Decision Analysis and Modeling	3
ENT 5361	Aquatic Entomology	3
ENR 5061	Water Quality and Natural Resources	3
STAT 5021	Statistical Analysis	4
FR 4262	Remote Sensing of Natural Resources	4
ENR 5575	Wetlands Conservation	3
FW 8459	Stream and River Ecology	3
WRS 8100	Shallow Lake Ecology Seminar	1
EEB 8990	Statistics and Observational Studies	1
FW 8200	Seminar	2
		<u>Class Credits= 38</u>
CBIO 8888	Doctoral Thesis Credits	24
		<u>Total Credits= 62</u>

APPENDIX B: continued

J.D/PhD in Conservation Biology

FW 8452	Conservation Biology	3
CBIO 8004	Economic and Social Aspects of Conservation Biology	3
CBIO 8001	Conservation Biology Seminar	3
CBIO 8095	Contemporary Problems in CB (Prelim)	1
FR 5251	Natural Resources in Sustainable International Development	3
LAW 6201	Land Use Planning	3
LAW 6606	Administrative Law	3
LAW 6234	Natural Resources Law	3
LAW 6215	Environmental Law	3
		<u>Class credits= 25</u>
CBIO 8888	Doctoral Thesis Credits	24
		<u>Total Credits 49</u>

APPENDIX C: ANNUAL REVIEW

ANNUAL STUDENT REVIEW – Conservation Biology Program

Name: _____

Year entered CB Program: _____

Degree: _____

Expected graduation date: _____

Program Milestones: *This section helps you track degree progress.*

All Students (please check all items you have completed)

- Student Advisory Committee (SAC)
(by end of 1st semester and annually thereafter)
- Examining Committee (2nd year, at latest)
- Degree Program Form (*during 1st year MS, 2nd year PhD*)

PhD. Students Only

- Written preliminary exam (*by 2.5 years*)
- Oral preliminary exam (*semester after writtens*)
- Thesis Proposal Form (*semester after orals*)

Professional Accomplishments: *This section helps you build your CV and reports accomplishments to the Conservation Biology Program. Attach additional sheets if necessary.*

Cumulative GPA while in CB Program: _____ Number of incomplete credits: _____

List grants, fellowships, or other awards that you received **or** that you applied for but did not receive in the last 12 months. (Include full name of source and amount received).

List meetings at which you gave an oral or poster presentation during the last 12 months. (Indicate those to which you were invited).

List any publications, giving full citation, you had over the last 12 months (Indicate if in press or already published).

List your teaching experiences during the last 12 months (TA, Guest Lecturer, full/part course, etc.). Include participation in Preparing Future Faculty or similar programs.

List CB-related outreach activities you have conducted during the last 12 months.

Additional information: List additional accomplishments you wish to report.

If you did not achieve progress in the above areas and wish to explain your situation, please do so.

APPENDIX D: COMMITTEE REPORTING FORM



COMMITTEE REPORTING FORM

Submit with degree program

Student Name (print)

Student Signature

Date of Committee Meeting

We, members of the student's advisory committee, have met as a group and discussed what will constitute acceptable coursework for his or her degree. We have reviewed and find acceptable the degree program that will be submitted to the Conservation Biology program and Graduate School.

Name (print) Signature

Name (print) Signature

Name (print) Signature

Name (print) Signature

Name (print) Signature

(Note: MS committees should have 3 members, including 2 from CB and one from a supporting field or minor. PhD committees should have 4 members, including 3 from CB and one from a supporting field or minor. Occasionally, programs have an additional member)