

OPERATING PROCEDURES OF THE ANIMAL BIOLOGY GRADUATE GROUP (ABIG)

I. Membership

A. Application Procedures

See Bylaws of ABIG

B. Renewal of membership

See Bylaws of ABIG

C. Limited membership

A category of limited membership will be established for individuals who are the major professor for one or more ABIG students, but whose membership in the Program has not been renewed. Limited members will continue to have such rights and obligations in the Program as are necessary to allow for the completion of the degrees of their students, but will not be eligible to accept additional students. Limited members may not vote in Program elections, and will not be subject to financial assessments that may be levied on regular members of the Program. Limited membership will terminate when the students have completed their degrees. Emeritus membership will be granted to individuals who have retired from the University, but wish to maintain association with the ABIG.

II. Animal Biology Graduate Committee and Standing Committees

A. Animal Biology Graduate Committee

See Bylaws of ABIG

B. Responsibilities of the Animal Biology Graduate Committee

1. Admissions

The Animal Biology Graduate Committee will act as the Admissions Committee for the M.S. and Ph.D. degrees.

The Graduate Committee will be responsible for evaluation of applications for admission to the ABIG. No student will be admitted without the commitment of a member of ABIG to serve as the major professor. The Graduate Committee is responsible for transmitting its decisions regarding particular applications to the members of the ABIG.

2. Membership

The Animal Biology Membership Committee will be appointed by the Animal Biology Graduate Committee from members of ABIG. It will be chaired by a member of the Graduate Committee but all other members will come from ABIG members that are not members of the Graduate Committee.

The Membership Committee will evaluate applications regarding faculty participation in ABIG. The committee will inform the members of the ABIG of its decisions regarding membership.

3. Educational Policy & Advising

The Animal Biology Graduate Committee will be responsible for matters concerning courses offered by the ABIG, the assignment of students to research advisers, the continuing financial support of graduate students, the format of oral examinations, and any other matters regarding courses or curricula in the ABIG.

III. Graduate Advisers

See Bylaws of ABIG and Section V. B., V. C. and VI. B. of the Operating Procedures.

IV. Master of Science Requirements in the Animal Biology Graduate Program

A. University Requirements

Plan I: A minimum of 30 units of upper-division and graduate coursework, including submission of a thesis. At least 12 units must be in graduate-level courses in the major field.

Plan II: A minimum of 36 units of upper-division and graduate coursework, including a comprehensive final examination. At least 18 units must be in graduate-level courses in the major field, with no more than nine of these 18 in research courses. The comprehensive final examination may be written, oral or both.

Master of Science candidates must be in residence for at least three quarters at Davis and must be registered in at least four units of upper-division and graduate courses in a quarter (or two units during Summer Session) to be regarded as 'resident'. With the consent of the Graduate Adviser and the Dean of Graduate Studies some coursework may be counted toward the degree that has been taken at other institutions, providing the units were not used in satisfaction of the requirements of another degree. The limit for this transfer credit is six units, or up to one-half the unit requirement if earned at another University of California campus. Up to 12 concurrent units from the University Extension concurrent program may be transferred to the Master of Science degree. Students must

maintain a 3.0 grade point average each quarter to be in 'good standing'. Only upper-division and graduate courses with grades of A, B, C, or S may be counted in satisfaction of the unit requirements.

B. Animal Biology Graduate Program Requirements

The following are requirements specific to the Master of Science program in Animal Biology:

Animal Biology 290 (Seminar) - at least two quarters (two units).

Plan I: a maximum of 12 research units (ABG 299) will be counted toward the 30-unit requirement. A minimum of six units of ABG 299 (research) and ABG 290C (Research Conference) under the supervision of the major professor, who is the chair of the thesis committee. At least six units of the 12 graduate units required by the University must be taken in '200- level' courses other than 290, 290C, 291, 297 and 299.

Plan II: 27 of the 36 required units are to be graded units (A, B, C) and 18 of these 27 will be graded graduate level units (200 and above). A minimum of six research units (ABG 299) is required; per university regulations, a maximum of 9 will be counted toward the 36-unit requirement. In addition, a written report in the style of a standard scientific journal in the field must be filed with the major professor of record who will judge its adequacy in the description of the research and the presentation of the results. The major professor of record must communicate the adequacy of this written report to the Graduate Adviser, in writing. THIS REPORT WILL BE MADE AVAILABLE TO THE ORAL EXAM COMMITTEE TO PROVIDE SOME FOCUS FOR THE DEPTH QUESTIONS.

C. Coursework in Integrative Animal Biology

Students admitted to the Master's degree in ABIG are expected to have completed preparatory coursework in integrative animal biology prior to enrollment. This includes courses in animal management, conservation animal biology and general biology *that integrate organismal animal biology*. Examples of such courses at UC Davis are:

Animal Science 119	Invertebrate Aquaculture
Animal Science 146	Dairy Cattle Production
Avian Science 100	Avian Biology
Entomology 100	General Entomology
Evolution and Ecology 134	Herpetology
Wildlife, Fish, and Conservation Biology 111	Biology and Conservation of Wild Birds

V. Guidance and Examination of Masters of Science Students

A. Requirements for the Masters of Science Degree in Animal Biology

The Masters of Science Program in Animal Biology is supervised by the Animal Biology Graduate Committee. Masters degrees are awarded under either Plan I or Plan II, as described by Graduate Studies. The program is available to students whose work is directed by any member of the ABIG. A comprehensive examination or a thesis based on original research is a requirement for the degree.

B. Guidance

The major professor is responsible for the educational direction of the student. These responsibilities include advising on courses to be taken to provide a broad education in the animal biology, ensuring the student is adequately prepared for research, guiding the student through a research project, and serving as the chair of the thesis committee.

1. First quarter of enrollment. The student should discuss potential plans of study with the graduate mentor (major professor). Then, the student and graduate adviser will meet to assess the background, research interests, and goals of the student. The graduate adviser and student should agree to a program of courses for the first year. At this time, a "First Quarter Interview" form should be completed (available from the ABIG Secretary), and a copy provided for the student's file.
2. Third quarter. The student, graduate adviser, and major professor will assess the progress of the student in research and in fulfilling the course requirements, and the student will be advised on her/his performance toward successful completion of the degree. Course work for the second year and preparation for continuing research should be discussed.
3. Fourth quarter. The student, graduate adviser, and major professor will meet no later than the end of the fourth quarter of enrollment to assist the student in setting a date for the comprehensive examination (if the student should choose a Plan II M.S. degree), or to assess the progress of the student's research to guarantee successful completion of a thesis by the end of the sixth and final quarter. The comprehensive examination must also be completed by the end of the sixth quarter of enrollment for Plan II students. The student will provide the adviser and major professor with a list of the courses completed or in progress, in order to demonstrate that the student will have fulfilled course work requirements by the completion of the sixth quarter. At this time, the adviser, in consultation with the student and major professor, will recommend to Graduate Studies the names of three faculty members suitable for the student's Thesis Committee or Comprehensive Examination Committee.

C. Graduate Adviser

A student who expects to take more than six quarters to complete her/his M.S. degree requirements must provide written justification to the Graduate Adviser. This memorandum, filed jointly with the student's major professor, must provide a sound academic basis for the delay in completion. If the Graduate Adviser determines that there is no sound academic basis for the delay, the Dean of Graduate Studies will be informed of the student's 'Unsatisfactory' progress.

If, on the basis of reports from the Major Professor, the Graduate Adviser determines that the student should be disqualified from the Masters of Science program, she/he will so inform Graduate Studies, the Major Professor, and the student. Such students have the right to appeal their case to the Animal Biology Graduate Committee.

In addition, and in keeping with the operating procedures of the Office of Graduate Studies, each student in the Master of Science program will be evaluated for satisfactory progress during the Spring Quarter of each year. Evaluation of satisfactory progress will be based upon the student's progress in research, performance in coursework and anticipation of graduation in six quarters of enrollment. Unsatisfactory progress toward completion will be reported to the Dean of Graduate Studies.

D. Comprehensive Final Examination

The comprehensive examination will be carried out according to the Bylaws and Operating Procedures of the ABIG. The examination will include the following:

1. Examination in the area of general organismal animal biology, covering the behavior, development, genetics, growth, nutrition, physiology and reproduction of a particular group of animals (such as fish or ruminants).
2. Examination of a more specialized nature in one of the disciplines of animal biology (immunonutrition, reproductive biology, etc.), chosen by the student, with the advice and consent of the Major Professor.

E. Thesis Committee

The Thesis Committee will be established and thesis prepared according to the Bylaws and Operating Procedures of the ABIG. The task of the Thesis Committee is to evaluate the student's work and certify that the work is of sufficient quality to warrant the award of a Master of Science degree.

VI. Guidance and Examination of Ph.D. Students in Animal Biology

A. Course Requirements

1. ABG 200A, 200B Integrated Animal Biology (3 units each)
2. ABG 401 Ethics and Professionalism in Animal Biology (2 units)
3. Interdisciplinary area of interest (8-20 units)

This is to be selected with the advice of the major professor and other members of the mentoring committee and approved by the graduate adviser. Individually tailored curricula will be developed for focus in areas such as ecological genetics, animal welfare, host-parasite interaction, immunonutrition, developmental genetics and other emerging cross-disciplinary fields. Examples of such curricula for immunonutrition and developmental genetics follow:

Immunonutrition

IMM 293	Current Concepts in Immunology (4 units)
NUT 251	Nutrition and Immunity (3 units)
IMM 265	Advanced Research in Nutrition and Immunity (1 unit) –taken twice
IMM 295	Cytokines: An Expanding Class of Cell Regulatory Agents (2 units)
NUT 204	Mineral Metabolism (2 units)
NUT 202	Advanced Energetics (2 units)
FST 211	Lipid Metabolism (2 units)

Developmental Genetics

MCB 255	Molecular Mechanisms in Animal Development (3 units)
MCB 259	Literature in Developmental Biology (1 unit)
GGG 201A	Transmission Genetics (5 units)
GGG 201B	Genomics (5 units)
GGG 292C	Seminar in Developmental Genetics (1 unit)

4. Statistical and Research Methods (graduate level [200] series; minimum of 6 units)

Example PLS 205/206

5. Scientific Writing/Grant Writing (1 course)

Examples NPB 270
NUT 492C

ABG 202 (submitted course)

6. Teaching (1 course)

ABG 300 or 396 (2 units) or equivalent
Teaching experience that includes leading discussion or laboratory sections.

7. Seminar (minimum of 2 quarters)

Disciplinary seminar that requires student presentation.

B. Guidance

First quarter: In conjunction with the major professor and the graduate adviser, student selects courses to be taken first quarter.

First/Second quarter: Student nominates remaining members of mentoring committee (total of three members) considering potential areas of research. The graduate adviser appoints the mentoring committee.

Fall quarter, year 1. Attend group's annual colloquium.

Second/third quarters: Mentoring committee meets with student and coursework plan is completed based on proposed research area. Potential sources of grants and proposed members of qualifying exam are discussed as well. The graduate adviser has final approval of coursework

Fall quarter, year 2. Students present poster at group's annual colloquium.

Sixth quarter: Potential Qualifying Examination (QE) committee members are submitted by graduate adviser to Graduate Council for appointment. Rules establishing the make-up of this committee are set by Graduate Council. The qualifying exam committee consists of five members. Normally, the majority of the qualifying exam committee members are from the Graduate Group. In addition, major professor is not to be a member of the QE. Student suggests eight potential members of QE. Graduate Adviser will typically forward at least three of these members to Graduate Studies/Graduate Council for approval.

Seventh quarter: Student should take qualifying examination before or during the 7th academic quarter (excluding summers).

Fall quarter, year 3. Students give oral presentation of research progress to date at group's annual colloquium.

When/if a student passes the qualifying examination, the student may complete paperwork to advance to candidacy. Student will select members of dissertation

committee at this time in conjunction with their mentoring professor and graduate adviser. The dissertation committee consists of three faculty members including the mentoring/major professor who serves as chair; under specific circumstances, the dissertation committee may include a committee member outside the University of California who has special expertise and qualifications. Student may choose to consult the initial mentoring committee in this selection process and may select members of the initial mentoring committee for the dissertation committee. The nomination of dissertation committee members is signed by the student, each prospective dissertation committee member, and graduate adviser before forwarding to Graduate Studies for appointment.

Group policy is that all students will orally discuss the dissertation in a group meeting with the dissertation committee before the dissertation is signed. The student is expected to present a seminar on the dissertation research before leaving campus.

The normative time for a Ph.D. is 5 years.

C. Dissertation

Dissertation should meet the standards for a Ph.D. dissertation as described by Graduate Council. Student will orally discuss the dissertation in a private group meeting with the dissertation committee.

D. Unsatisfactory Progress

Unsatisfactory progress would include not having the mentoring committee selected and coursework finalized by the end of the third quarter, not having taken the qualifying examination by the end of the seventh quarter, not advancing to candidacy by the end of the quarter after passing the qualifying examination, and not meeting at least annually with the dissertation committee after advancing to candidacy.

VII. Amendments

Amendments to the Operating Procedures of the ABIG can be made by majority vote of the Animal Biology Graduate Committee.