

**AVIAN SCIENCES GRADUATE GROUP
MS DEGREE REQUIREMENTS**

Revised: 2003; Current revision March 2011
Approved by Graduate Council: May 6, 2011

MASTER'S PROGRAM

1) Admissions Requirements

Completion of an online Office of Graduate Studies application, completion of a Bachelor of Sciences or Bachelor of Arts program with a GPA of 3.0 (4.0 = A) or better, and three letters of recommendation.

GRE scores are required of all students; TOEFL or IELTS scores are required for students whose primary language of instruction has not been in English; students must score at least the minimums specified by the Office of Graduate Studies.

a) Prerequisites:

Chemistry: at least 15 quarter credits including first year chemistry and organic chemistry (e.g. CHE 2A, 2B, 2C; 8A, 8B)

Mathematics: at least 8 credits (e.g. MAT 16A, 16B, 16C)

Statistics: at least 3 credits (e.g. STA 100)

Physiology: at least 3 credits

Students may be admitted without 10 quarter credits of the above prerequisites (i.e., having completed 19 of the 29 required credits) although the 10 units must be completed as deficiencies unless waived by the Executive Committee for special reasons.

b) Deficiencies.

Course work deficiencies should be made up by the end of the first academic year following initial enrollment by earning a letter grade of "B" or better; courses cannot be taken on an S/U basis.

2) M.S. Plan: Plan I (Thesis) and Plan II (Comprehensive Examination).

Plan I. This plan requires 30 units of graduate and upper division courses (the 100 and 200 series only) and, in addition, a thesis is required. At least 12 of the 30 units must be graduate work in the major subject area.

Plan II. This plan requires completion of 36 units of course work and satisfactory performance on a comprehensive final examination. At least 18 of the 36 units must be graduate level (200 series) in the major subject area, and no more than 9 research units (299) may be used to satisfy the 18 unit graduate course requirement. No thesis is required.

3) Course Requirements - Core and Electives

The student, in consultation with the major professor and graduate advisor, should choose a course and research plan that will meet their objectives. The plan should be filed with the graduate advisor by the second quarter of the student's graduate work. This plan should include any uncompleted prerequisites, the University Requirements listed above and the following Group Requirements:

a) **Core Courses (10 units total):**

Required courses (Plan I & Plan II students):

- 1) Avian Biology
AVS 100 Avian Biology (3) or
WFC 111 Biology and Conservation of Wild Birds (3)
- 2) Core Course/Seminar
AVS 290 First fall quarter (2); second fall quarter (1)
- 3) Avian Physiology
NPB 117 Avian Physiology (3), and
NPB 217 Advanced Avian Physiology (1) offered concurrently
with 117 - if previously taken 117, student must take 217

b) **Elective Courses (20 units total Plan I; 26 units total Plan II):**

- 1) General Avian Biology. At least 6 units from the following courses (or their equivalents as approved by the Graduate Advisor):
AVS 103 Avian Development and Genetics (3)
AVS 115 Raptor Biology (2)
AVS 121 Avian Reproduction (2)
AVS 123 Management of Birds (3)
AVS 149 Egg Production Management (2)
AVS 150 Avian Nutrition (1)
AVS 160 Experiments in Avian Sciences (2)
AVS 170 Advanced Avian Biology (4) I (even yr.)
WFC 111L Laboratory in Biology & Conservation of Wild Birds (3)
WFC 136 Ecology of Waterfowl and Gamebirds (3)
PHR 220 Avian Medicine (3)
PHR 222 Avian Immunology (3)
PHR 225 Preventative Avian Medicine Practice (3)
- 2) Area of Emphasis. Students must choose one option and complete 6 units (Plan I) or 9 units (Plan II) of graduate study in one of following areas. Courses in these areas should be chosen in consultation with the major professor and graduate advisor:
Avian Cellular, Molecular, and Developmental Sciences
Avian Organismal Sciences
Avian Environmental Sciences
- 3) Additional coursework
In addition to the specific courses noted above, students must take additional electives to meet the minimum number of units required for the plan they are following. These electives may be recommended by the Graduate Advisor or major professor to cover disciplinary deficiencies, or contribute toward intellectual development (e.g., STA 106 or STA 108). The following courses/units may be used to fulfill this requirement:
ANS 297 Supervised Teaching (2)
AVS 299 Research (variable)
ENG 104E Writing in the Professions: Science (4)
EDU 398 Seminar in College Teaching (1-5)
**Plan II students must complete 9 units of research (299), which will count towards the total 36 units required.*

c) **Summary:**

Plan I. A total of 30 units is required: 10 units of core coursework, and 20 units of elective coursework. At least 12 of the 30 units must be graduate work (200 level) in the major subject area. At least 6 units of the 200 level course requirements must be graded. It is recommended that all program courses be taken for a letter grade unless only offered as S/U or P/NP.

Plan II. A total of 36 units are required: 10 units of core coursework, and 26 units of elective coursework. At least 18 of the 36 units must be graduate level (200 series) in the major subject area. At least 9 units of the 200 level course requirements must be graded. It is recommended that all program courses be taken for a letter grade unless only offered as S/U or P/NP. Plan II students must complete 9 units of research (299) under the guidance of a major professor. A written report of the research will be presented to the student's major professor for evaluation.

In order to keep on track with the requirements outlined above each student is required to complete an annual Graduate Student Progress Report to be submitted at the end of each academic year. This form will be available from the Graduate Program Assistant and should be submitted to the Program Assistant once completed. The form must be completed in consultation with, and signed by, the student's Course Guidance Committee (see below). All progress reports are kept in the student's file within the program; unsatisfactory progress reports are filed with the Office of Graduate Studies. Students with unsatisfactory progress or standing may be placed on academic probation or disqualified from the program.

The minimum course load is 12 units each academic quarter; these 12 units can be made up of required courses and 299s. Per UC regulations, students cannot enroll in more than 12 units of graduate level courses (200) or more than 16 units of combined undergraduate and graduate level (100, 200, 300) courses per quarter.

4) **Special requirements:** None

5) **Committees:**

a) **Admission Committee**

Once the completed application, all supporting material, and the application fee have been received, the application will be submitted to the Admissions Committee. The Admissions Committee consists of 3-4 graduate group faculty and 1 graduate group student. Based on a review of the entire application, a recommendation is made to accept or decline an applicant's request for admission. That recommendation is forwarded to the Dean of Graduate Studies for final approval of admission. Notification of admissions decisions will be sent by Graduate Studies.

b) **Course Guidance Committee**

Students are assigned to a Graduate Adviser who is not their Major Professor. The Course Guidance Committee is comprised of the assigned Graduate Adviser and the student's major professor. Determination of the adequacy of a student's background, when necessary, will be undertaken by the Graduate Adviser in consultation with the student and the student's major professor. The student in consultation with the major professor and graduate adviser should choose a course and research plan that will meet their objectives. The plan should be filed with the graduate advisor by the second quarter of the student's graduate work. This plan should include any uncompleted Admission Requirements, the University Requirements and the Group Requirements listed above.

c) **Thesis Committee and Comprehensive Examination Committee**

Plan I students, in consultation with his/her major professor and graduate advisor, nominate 3 faculty members to serve on the Thesis Committee when advancing to candidacy. These nominations are submitted to the Office of Graduate Studies for formal appointment in accordance with Graduate Council policy. The major professor is a member of this committee and typically serves as Chair the Thesis Committee.

Plan II students in consultation with his/her major professor and graduate advisor, nominates 3 faculty members to serve on their Comprehensive Examination Committee when advancing to candidacy. These nominations are submitted to the Executive Committee of the ASGG for approval. The major professor is a member of this committee and typically serves as Chair of the Comprehensive Examination Committee.

6) **Advising Structure and Mentoring**

The **Major Professor** is the faculty member who supervises the student's research (Plan I and II) and thesis (Plan I); this person typically serves as the Chair of the Thesis Committee (Plan I) or Comprehensive Examination Committee (Plan II). The **Graduate Adviser** is nominated for appointment by the Chair of the program, appointed by the Dean of Graduate Studies, and is a resource for information on academic requirements, policies and procedures, and registration information. With the Major Professor, the Graduate Adviser serves as the Course Guidance Committee.

The **Mentoring Guidelines** can be found in the graduate student handbook available on-line at: <http://aviansciences.ucdavis.edu/advising/>.

7) **Advancement to Candidacy**

Every student must file an official application for Candidacy for the Degree of Master of Science after completing one-half of their course requirements and at least one quarter before completing all degree requirements. The Candidacy for the Degree of Master form can be found online at:

<http://www.gradstudies.ucdavis.edu/forms/>.

A completed form includes a list of courses the student will take to complete degree requirements. If changes must be made to the student's course plan after s/he has advanced to candidacy, the Graduate Adviser must recommend these changes to Graduate Studies. Students must have their Graduate Adviser and thesis committee Chair sign the candidacy form before it can be submitted to Graduate Studies. If the candidacy is approved, the Office of Graduate Studies will send a copy to: the Thesis Committee Chair (for Plan I students), the appropriate graduate staff person, and the student. If the Office of Graduate Studies determines that a student is not eligible for advancement, the department and the student will be told the reasons for the application's deferral. Some reasons for deferring an application include: grade point average below 3.0, outstanding "I" grades in required courses, or insufficient units.

M.S. students must complete the Candidacy application prior to the quarter in which they will file a thesis or take the comprehensive exam, normally in the 4th quarter. For Plan I (thesis option), students will list their three committee members for Office of Graduate Studies approval. For Plan II (exam option), students do not need to provide names of the exam committee members to the Office of Graduate Studies.

8) **Comprehensive Examination and Thesis Requirements**

a) **Plan I: Thesis Requirements**

A written outline of the research project shall be submitted to the thesis committee. This outline will include critical evaluation of the methods and their limitations plus a full description of experimental design, protocols, and data analysis. Consultations should occur at reasonable time intervals between the candidate and the thesis committee meeting as a group. The M.S. thesis should be:

- A scholarly piece of experimental research.
- Rigorous in approach (design, methodology, and analysis), but not as extensive as a Ph.D. dissertation.

The thesis research must be conducted while the student is enrolled in the program. The thesis is submitted to the thesis committee at least one month before the student plans to make requested revisions. All committee members must approve the thesis and sign the title page before the thesis is submitted to Graduate Studies. Should the committee determine that the thesis is unacceptable, even with substantial revisions, the program may recommend the student for disqualification from the program to the Dean of Graduate Studies.

The thesis must be filed in a quarter in which the student is registered or on filing fee. Instructions on preparation of the thesis and a schedule of dates for filing the thesis in final form are available from Graduate Studies; the dates are also printed in the UC Davis General Catalog and in the Class Schedule and Registration Guide issued each quarter. A student must have a GPA of 3.0 for the M.S. degree to be awarded.

b) **Plan II: Comprehensive Examination**

Every M.S. Plan II student needs to pass a comprehensive exam to complete the program, usually taken in the Spring quarter of the second year (6th quarter of enrolment). The M.S. Comprehensive Examination is an oral examination, based on concepts and methods in avian sciences (breadth) and an area of depth. The exam duration will be approximately 2-3 hours. Each M.S. Plan II student will also be expected to prepare a paper on a subject of their choice written in scientific format and approved by the Major Professor. Considerable flexibility is permitted as to the content and focus of this research paper, but it should represent a substantive effort to provide a scholarly analysis of an area of research. This could comprise a review paper, a report of an independent research effort or a structured and well-developed proposal for a future research project. The research paper must be submitted to the Major Professor at least one month before the student plans to take the Comprehensive Examination. If the paper is deemed insufficient by the major professor, the student will be required to revise the paper before taking the exam. This paper will be provided to the examination committee, but will not form the basis for the oral comprehensive examination.

The Executive Committee of the ASGG will appoint an examination committee that will be responsible for conducting the examination. The examination committee will forward its recommendation to the Graduate Program Committee, which will make the final decision on each student. Students must be registered or in current filing fee status when they take the exam.

The results of all examinations will be reported to Graduate Studies using the Master's Report Form (<http://www.gradstudies.ucdavis.edu/forms/>). Graduate Studies requires the Exam committee's unanimous vote to pass a student on the exam. If a student

does not pass the exam, the committee may recommend that the student be reexamined one more time, but only if the Graduate Adviser concurs with the committee. The examination may be repeated just once. A student who does not pass on the second attempt is subject to disqualification by the Dean of Graduate Studies from further graduate work in the program.

9) Normative Time to Degree

The Normative Time to Degree for the M.S. program is six quarters (two years). Students involved in field-based research requiring 2 field seasons or extensive laboratory analyses will require additional quarters, but the intent of the M.S. program is for students to graduate within two years. Normative Time to Candidacy is 3-4 quarters (beginning of the second year); Normative Time in Candidacy is 3-4 quarters (one year).

10) Typical Time Line and Sequence of Events (units in parentheses)

Year 1:

<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
AVS 290 (core) (2)	Avian Elective (2-4)	NPB 117 (3)
AVS 100/WFC 111 (3)	Area of Emphasis elective (3-4)	NPB 217 (1)
Avian Elective (2-4)	Area of Emphasis elective (3-4)	Avian Elective (2-4)
AVS 299 Research (3-6)	AVS 299 Research (3-6)	AVS 299 Research (3-6)

Year 2:

<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
AVS 290 (core) (1)	AVS 299 Research (12)	AVS 299 Research (12)
Area of Emphasis elective (3-4)		M.S Comprehensive
AVS 299 Research (7-8)		Exam (Plan II)
Advance to Candidacy		
Nominate Thesis/Comp Exam Committee		

11) Sources of funding:

Students may be offered 1 or 2 quarters of block grant support from the Group in their first year in the graduate program. The desire of the Graduate Group is that Major Professors supplement or match these funds. Students may receive only limited support from the Group in subsequent years. Additional funding for student stipends typically comes from a mix of multi-year extramural fellowships, some university fellowships, graduate student research (GSR) support from grants (often through their Major Professor), and teaching assistantships. Students also commonly apply for grants to support their own research.

12) PELP, In Absentia, and Filing Fee status.

Information about PELP (Planned Educational Leave), In Absentia (reduced fees when researching out of state), and Filing Fee status can be found in the Graduate Student Handbook: <http://gradstudies.ucdavis.edu/publications/>

Attachments:

M.S. Plan I

1) Avian Biology

a) Choose one of the following courses

- AVS 100 Avian Biology (3) I
WFC 111 Biology and Conservation of Wild Birds (3) I

b) Enroll in AVS 290 Fall of the 1st and 2nd year (mandatory)

- AVS 290 Year 1 Seminar in Avian Sciences (2) I
AVS 290 Year 2 Seminar in Avian Sciences (1) I

2) Avian Physiology

- NPB 117 Avian Physiology (3) III
NPB 217 Advanced Avian Physiology (1) III (offered concurrently with NPB 117)

3) General Avian Biology

Choose 6 units from following courses (or Graduate Advisor-approved alternates)

- AVS 103 Avian Development & Genetics (3) I
AVS 115 Raptor Biology (2)
AVS 121 Avian Reproduction (2) II (odd yr.)
AVS 123 Management of Birds (3)
AVS 149 Egg Production Management (2)
AVS 150 Avian Nutrition (1) I (even yr.)
AVS 160 Experiments in Avian Sciences (2) I,II,III
AVS 170 Advanced Avian Biology (4) I (even yr.)
WFC 111L Laboratory in Biology & Conservation of Wild Birds (3) I (even yr.)
WFC 136 Ecology of Waterfowl and Gamebirds (3) II
PHR 220 Avian Medicine (3)
PHR 222 Avian Immunology (3)
PHR 225 Preventative Avian Medicine Practice (3)

4) Area of Emphasis

In consultation with your major professor and the Graduate Adviser, choose 6 graded (A-F) 200-level units in an Area of Emphasis:

- Cellular, Molecular and Developmental Sciences
- Organismal Sciences
- Avian Environmental Sciences

5) Additional coursework to total 30 units, of which at least 6 units must be 200-level.

In addition to courses recommended by the Graduate Adviser or your major professor to cover disciplinary deficiencies, or to contribute toward intellectual development (e.g., STA 106 or 108), the following courses/units may be used to fulfill this requirement:

- ANS 297 Supervised Teaching (2) I,II,III
AVS 299 Research (variable) I,II,III
ENG 104E Writing in the Professions: Science (4) I,II,III
EDU 398 Seminar in College Teaching (1-5)

6) M.S. Thesis

Thesis Committee Members

Major Professor:

Faculty #2:

Faculty #3:

M.S. Plan II

1) Avian Biology

a) Choose one of the following courses

- AVS 100 Avian Biology (3) I
WFC 111 Biology and Conservation of Wild Birds (3) I

b) Enroll in AVS 290 Fall of the 1st and 2nd year (mandatory)

- AVS 290 Year 1 Seminar in Avian Sciences (2) I
AVS 290 Year 2 Seminar in Avian Sciences (1) I

2) Avian Physiology

- NPB 117 Avian Physiology (3) III
NPB 217 Advanced Avian Physiology (1) III (offered concurrently with NPB 117)

3) General Avian Biology

Choose 6 units from the following courses or Graduate Advisor-approved alternates

- AVS 103 Avian Development & Genetics (3) I
AVS 115 Raptor Biology (2)
AVS 121 Avian Reproduction (2) II (odd yr.)
AVS 123 Management of Birds (3)
AVS 149 Egg Production Management (2)
AVS 150 Avian Nutrition (1) I (even yr.)
AVS 160 Experiments in Avian Sciences (2) I,II,III
AVS 170 Advanced Avian Biology (4) I (even yr.)
WFC 111L Laboratory in Biology & Conservation of Wild Birds (3) I (even yr.)
WFC 136 Ecology of Waterfowl and Gamebirds (3) II
PHR 220 Avian Medicine (3)
PHR 222 Avian Immunology (3)
PHR 225 Preventative Avian Medicine Practice (3)

4) Area of Emphasis

In consultation with your major professor and the Graduate Adviser, choose 9 graded (A-F) 200-level units in an Area of Emphasis

- Cellular, Molecular and Developmental Sciences
- Organismal Sciences
- Avian Environmental Sciences

5) Additional coursework to total 36 units, of which at least 9 units must be 200-level. In addition to courses recommended by the Graduate Advisor or your major professor to cover disciplinary deficiencies, or to contribute toward intellectual development (e.g., STA 106 or 108), the following courses/units may be used to fulfill this requirement:

- ANS 297 Supervised Teaching (2) I,II,III
AVS 299 Research (at least 9) I,II,III
ENG 104E Writing in the Professions: Science (4) I,II,III
EDU 398 Seminar in College Teaching (1-5)

6) Research Report

Nine units of 299 must be used in support of a research report to be approved by your major professor

7) Comprehensive Oral Exam

Examining Committee Members

Faculty #1:

Faculty #2:

Faculty #3: