

June 14, 2018

ALAN HASTINGS, CHAIR
Population Biology Graduate Group

RE: Population Biology Degree Requirements

Enclosed is a copy of the Population Biology graduate degree requirements as approved by Graduate Council on May 25, 2018. These degree requirements are now the official requirements for the Population Biology Graduate Group and will be posted on the Office of Graduate Studies program webpage:

<https://grad.ucdavis.edu/programs/gpop>

Thank you for your efforts on behalf of graduate education.

Sincerely,

A handwritten signature in black ink, appearing to read "N. Baumgarth". The signature is fluid and cursive, with a large loop at the end.

Nicole Baumgarth, Chair
Graduate Council

CC: Amanda Kimball, Graduate Studies Analyst
Sherri Mann, Graduate Group Coordinator

POPULATION BIOLOGY GRADUATE GROUP
Ph.D. and M.S. DEGREE REQUIREMENTS
Current: June 1999
Revised: January 2018
Revised by PBGG EC 1/2018, Approved by PBGG EC 1/2018
Graduate Council Approval: May 25, 2018

Master's Degree Requirements: Plan I (Thesis)

1) Admissions requirements:

Consideration for program admission requires a bachelor's degree, three letters of recommendation, official transcripts, GRE scores, TOEFL or IELTS score (if applicable) and Office of Graduate Studies online application with fee by the stated admission deadline. A minimum GPA of 3.0 is required. Applicants must also identify a Confirmed Major Professor: a Population Biology faculty member in good standing must confirm that they accept the student into their laboratory, and will provide financial support, access to essential resources to complete their degree, as well as mentorship until the student completes their program of study. However, admissions decisions are made on a case-by case basis. Meeting some or all of these criteria does not guarantee admission, but merely eligibility. The decision to recommend admission to the Dean of Graduate Studies will be made by the Program Admissions Committee on the basis of available space and the competitiveness of applicants compared to the eligible pool.

- a) **Prerequisites:** Students entering the graduate group are expected to have completed a set of courses that are typical in undergraduate biology majors. Certain courses are viewed as sufficiently important that entering students who have not taken them or their equivalent will be required to do so. These courses are:
- a one-year course in introductory biology for biology majors (e.g. BIS 2 series or equivalent)
 - a one-year course in calculus (e.g. MAT 17 series or equivalent)
 - a course in statistics (e.g. STA 100 or equivalent)
 - an upper-division course in general ecology or population biology (e.g. EVE 101 or equivalent)
 - an upper-division course in genetics (e.g. BIS 101 or equivalent)
 - an upper-division course in evolution (e.g. EVE 100 or equivalent)
- b) **Deficiencies:** The requirements for evolution and ecology/population-biology may be met by demonstrating proficiency, as judged by the instructor, while working as a teaching assistant in these courses. The guidance committee is charged with the assignment of courses that will fulfill these requirements.

2) Plans of Study for a M.S. Degree in Population Biology – Master’s Plan I (Thesis)

Plan I. This plan requires that the student complete at least 30 units of course work, including the PBGG Core Course. Evaluation of the thesis, which presents the result of original research carried out at UC Davis, will be carried out by a three-person thesis committee composed of the thesis advisor and two additional PBGG faculty, proposed by the student and approved by the executive committee of the group.

There are a required 30 units of graduate and upper division courses. At least 12 of the 30 units must be graduate work in the major field.

3) Course Requirements - Core and Electives (30 units minimum)

a) Core Courses (total 20 units)

Plan I (20 units)
PBG 200A – Principles of Population Biology – Fall Quarter – 5 units
PBG 200B – Principles of Population Biology – Winter Quarter – 6 units
PBG 200C – Principles of Population Biology – Spring Quarter – 6 units
PBG 231 – Mathematical Methods in Population Biology – Fall Quarter – 3 units
(First-Year Advising Committee will consider requests to place out of this course.)

b) Seminar Requirements (total 6 units)

Plan I (6 units) Must enroll each quarter in residence.
PBG 290 – Center for Population Biology Seminar Series – 1 unit
PBG 292 – Ecology and Evolution Seminar Series – 1 unit

c) Elective Courses (total 4 units)

PBGG students will take any combination of at least three classes from the following:

PBG 270 – Evolutionary Biology – 1 unit
PBG 271 – Ecology Research – 1 unit
PBG 298 – Group Study – 1-5 units
Any graduate seminar for which the instructor of record is a member of PBGG
Two elective quantitative courses – Determined by First-Year Guidance Committee

PBGG students will take at least one quarter of PBG 270; and at least one quarter of PBG 271.

d) **Summary:** A typical program will usually involve approximately 30 units of course work, including seminars. (For example, 20 units for the first-year core, 4-12 for additional courses, approximately 6 seminar units.) Once course requirements are completed, students can take additional classes as needed, although the 12 units per quarter are generally fulfilled with a research class (299) and perhaps seminars. 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:** Students need to pass the First Year Exam given after classes at the end of the first year at the Master's level. This exam covers material in PBG 200A, PBG 200B and PBG 200C. The questions on the exam, and the evaluation of the exam, will be determined by a committee consisting of the instructors in PBG 200A, PBG 200B and PBG 200C and the chair of the Population Biology Graduate Group. If the student fails, the student will be given the option to retake (by the end of the summer) the portions of the exam that were initially failed OR, at the discretion of the examining committee, other requirements may be substituted (such as writing papers, TA'ing courses in the area where weakness was apparent, or doing a small research project). Students retaking portions of the exam must fail no more than one section in order to convert their "No Pass" to a "Pass" for the First-Year Exam.

5) **Committees:**

a) **Admissions 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 at least four Population Biology Graduate Group faculty and one Population Biology 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.

b) **Course Guidance or Advising Committee: First-Year Guidance Committee**

Each new student will be assigned a three-person First-Year Guidance Committee when they arrive on campus. This committee is made up of the student's first-year Faculty Mentor, an assigned Academic Adviser, and a third person (faculty) with interests close to those of the student. The committee will meet with new students within the first week of the Fall quarter, though prior to the start of the quarter is encouraged. Together, the committee and student will outline the courses that will be required for graduation. These requirements will be recorded on the First-Year Guidance Committee Report form, which serves as a contract between the Group and the student. This contract may be changed at any time by mutual consent of the student and the Guidance Committee.

The Guidance Committee is also charged with overseeing all aspects of a student's academic life and should meet as often as is useful, but at least once every year in the Spring quarter for completion of the annual student progress report.

c) **Thesis Committee**

After a student passes the First-Year Exam, their Guidance Committee will propose a Thesis Committee with at least three members. At least two members, including the chair, must be members of the Population Biology Graduate Group. The committee will be appointed by the Dean of Graduate Studies.

6) Advising Structure and Mentoring:

Every entering student is assigned a **First-Year Faculty Mentor**. The First-Year Faculty Mentor is typically the person with whom the student intends to work for the duration of their M.S.. Should the student continue with the Faculty Mentor into their second year, this mentor will be officially recognized as the student's **Major Professor**. In other words, an official Major Professor is not assigned until the beginning of the second year.

In the beginning of the second year, the First-Year Faculty Mentor on the Guidance Committee is replaced by the student's Major Professor, who may or may not be the same person. During the second year, the Guidance Committee provides a role in academic advising to the student.

The Mentoring Guidelines can be found on the Population Biology website at: http://www.eve.ucdavis.edu/eve/pbg/Program_Mentoring_Guideline.html.

7) Advancement to Candidacy:

Every student must file an official application for Candidacy for the Degree of Master of Science, Population Biology and pay the Candidacy Fee after completing one-half of their course requirements and at least one quarter before completing all degree requirements; this is typically no later than the 7th quarter of enrollment. 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 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 appropriate Graduate Program Coordinator and the student; the Thesis Committee Chair will also receive a copy, if applicable. If the Office of Graduate Studies determines that a student is not eligible for advancement, the program 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.

8) Thesis (Plan I):

Plan I requires that the student complete at least 30 units of course work, including the PBGG Core Course. Evaluation of the thesis, which presents the result of original research carried out at UC Davis, will be carried out by a three-person thesis committee composed of the thesis advisor and two additional PBGG faculty chosen as described above.

9) Normative Time to Degree: Normative Time is the elapsed time (calculated to the nearest quarter) that a student would need to complete all requirements for the degree, assuming that they are engaged in full-time study and making adequate progress. The normative time for completion of Masters Plan I is 6 quarters.

10) Typical Time Line and Sequence of Events:

Population Biology Master’s Plan I Study Plan:

Year One	Fall	Winter	Spring
	PBG 200A Principles of Population Biology: single-species ecology and evolution	PBG 200B Principles of Population Biology: multi-species communities	PBG 200C Principles of Population Biology: microevolution and macroevolution
	PBG 290C Research Conference	PBG 290C Research	PBG 290C Research
	PBG 299 Research	PBG 299 Research	PBG 299 Research
	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar
	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar
	PBG 231 Mathematical Methods in Population Biology	Additional course(s) as required by Guidance Committee	PBG 271 Ecology Research
Year Two	Fall	Winter	Spring
	PBG 290C Research Conference	PBG 290C Research	PBG 290C Research
	PBG 299 Research	PBG 299 Research	PBG 299 Research
	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar
	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar
	PBG 270 Evolutionary Biology	PBG 271 Ecology Research or PBG 270 Evolutionary Biology	
	Additional course(s) as required by Guidance Committee	Additional course(s) as required by Guidance Committee	
	Elective quantitative course	Elective quantitative course	

11) Sources of funding

The Population Biology Graduate Group agrees to provide support during the academic year in years one through two. This support can be a combination of GSR positions, Teaching Assistant and/or Reader assignments, and faculty resources when available. Students in years three and beyond are responsible for providing their own funding (which can include TAsip, campus GSR/external resources, faculty resources when available).

Admitting faculty will provide one quarter of summer support from their available funding resources (most commonly grant funded GSR support) that a student may choose to accept or decline. This too is for students in years one through two. Faculty may provide additional support at their discretion.

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 Guide: <http://www.gradstudies.ucdavis.edu/publications/>.

Master's Degree Requirements: Plan II (Comprehensive Examination)

1) Admissions requirements:

Consideration for program admission requires a bachelor's degree, three letters of recommendation, official transcripts, GRE scores, TOEFL or IELTS score (if applicable) and Office of Graduate Studies online application with fee by the stated admission deadline. A minimum GPA of 3.0 is required. Applicants must also identify a Confirmed Major Professor: a Population Biology faculty member in good standing must confirm that they accept the student into their laboratory, and will provide financial support, access to essential resources to complete their degree, as well as mentorship until the student completes their program of study. However, admissions decisions are made on a case-by case basis. Meeting some or all of these criteria does not guarantee admission, but merely eligibility. The decision to recommend admission to the Dean of Graduate Studies will be made by the Program Admissions Committee on the basis of available space and the competitiveness of applicants compared to the eligible pool.

a) Prerequisites: Students entering the graduate group are expected to have completed a set of courses that are typical in undergraduate biology majors. Certain courses are viewed as sufficiently important that entering students who have not taken them or their equivalent will be required to do so. These courses are:

- a one-year course in introductory biology for biology majors (e.g. BIS 1 or BIS 2 series or equivalent)
- a one-year course in calculus (e.g. MAT 17 series or equivalent)
- a course in statistics (e.g. STA 13 or STA 100 or equivalent)
- an upper-division course in general ecology or population biology (e.g. EVE 101 or equivalent)
- an upper-division course in genetics (e.g. EVE 102 or equivalent)
- an upper-division course in evolution (e.g. EVE 100 or equivalent)

b) Deficiencies: The requirements for evolution and ecology/population-biology may be met by demonstrating proficiency, as judged by the instructor, while working as a teaching assistant in these courses. The guidance committee is charged with the assignment of courses that will fulfill these requirements.

2) Plans of Study for a M.S. Degree in Population Biology – Master's Plan II (Comprehensive Examination)

Plan II. This plan requires that the student complete at least 36 units of course work, including the PBGG Core Course, and pass a comprehensive final examination (no thesis required).

There are a required 36 units of graduate and upper division courses, of which at least 18 units must be graduate courses in the major field. Not more than 9 units of research (299 or equivalent) may be used to satisfy the 18-unit requirement. A comprehensive final examination in the major subject that goes beyond the material covered in the first year

exam and is tailored to the student by the examining committee that is nominated by the executive committee, is required of each candidate.

3) Course Requirements - Core and Electives (36 units minimum)

a) Core Courses (total 20 units)

Plan II (20 units)
PBG 200A – Principles of Population Biology – Fall Quarter – 5 units
PBG 200B – Principles of Population Biology – Winter Quarter – 6 units
PBG 200C – Principles of Population Biology – Spring Quarter – 6 units
PBG 231 – Mathematical Methods in Population Biology – Fall Quarter – 3 units
(First Year Advising Committee will consider requests to place out of this course.)

b) Seminar Requirements (total 6 units)

Plan II (6 units) Must enroll each quarter in residence.
PBG 290 – Center for Population Biology Seminar Series – 1 unit
PBG 292 – Ecology and Evolution Seminar Series – 1 unit

c) Elective Courses (total 10 units)

PBGG students will take any combination of at least three classes from the following:

PBG 270 – Evolutionary Biology – 1 unit
PBG 271 – Ecology Research – 1 unit
PBG 298 – Group Study – 1-5 units
Any graduate seminar for which the instructor of record is a member of PBGG
Two elective quantitative courses – Determined by First-Year Guidance Committee
Up to 7 units of PBG290C or PBG 299

PBGG students will take at least one quarter of PBG 270; and at least one quarter of PBG 271.

d) **Summary:** A typical program will usually involve approximately 36 units of course work, including seminars. (For example, 20 units for the first-year core, 10-12 for additional courses, 6-12 seminar units). Once course requirements are completed, students can take additional classes as needed,. 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:** Students need to pass the first year exam given after classes at the end of the first year at the Master's level. This exam covers material in PBG 200A, PBG 200B and PBG 200C. The questions on the exam, and the evaluation of the exam, will be determined by a committee consisting of the instructors in PBG 200A, PBG 200B and PBG 200C and the chair of the Population Biology Graduate Group. If the student fails, the student will be given the option to retake (by the end of the summer) the portions of the

exam that were initially failed OR, at the discretion of the examining committee, other requirements may be substituted (such as writing papers, TA'ing courses in the area where weakness was apparent, or doing a small research project). Students retaking portions of the exam must fail no more than one section in order to convert their "No Pass" to a "Pass" for the First-Year Exam.

5) **Committees:**

a) **Admissions 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 at least four Population Biology Graduate Group faculty and one Population Biology 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.

b) **Course Guidance or Advising Committee: First Year Guidance Committee**

Each new student will be assigned a three-person First-Year Guidance Committee when they arrive on campus. This committee is made up of the student's first-year Faculty Mentor, an assigned Academic Adviser, and a third person (faculty) with interests close to those of the student. The committee will meet with new students within the first week of the Fall quarter, though prior to the start of the quarter is encouraged. Together, the committee and student will outline the required courses for graduation. These requirements will be recorded on the First-Year Guidance Committee Report form, which serves as a contract between the Group and the student. This contract may be changed at any time by mutual consent of the student and the Guidance Committee.

The Guidance Committee should meet as often as is useful, but at least once every year in the Spring quarter for completion of the annual student progress report.

c) **Comprehensive Examination Committee**

A three-person committee will examine the student in population biology and three other designated areas.

At least two of the examiners, including the chair, must be faculty members of the Population Biology Graduate Group.

Any qualified faculty within the UC system and a member of the Academic Senate may sit on the committee. Faculty outside of the UC system may sit on the committee by exception. Non-faculty subject experts may sit on the committee by exception.

The student, in consultation with the Guidance Committee, will propose two examination areas in addition to population biology (three areas total) representing sub-disciplines of population biology such as behavior, population genetics, molecular genetics, genomics, evolution, community ecology, systematics, conservation biology, environmental physiology, mathematical theory in population biology, statistical and experimental methods in population biology, resource economics and management, paleontology, or the biology of a particular taxon (e.g., mammalogy, ornithology,

entomology, invertebrate zoology). One faculty member will act as an examiner for each of these areas.

The Graduate Adviser will review and approve committee membership recommendations..

6) Advising Structure and Mentoring:

Every entering student is assigned a **First-Year Faculty Mentor**. The First-Year Faculty Mentor is typically the person with whom the student intends to work for the duration of their studies

The Mentoring Guidelines can be found on the Population Biology website at: http://www.eve.ucdavis.edu/eve/pbg/Program_Mentoring_Guideline.html.

7) Advancement to Candidacy:

Every student must file an official application for Candidacy for the Degree of Master of Science, Population Biology and pay the Candidacy Fee after completing one-half of their course requirements and at least one quarter before completing all degree requirements; this is typically no later than the 4th quarter of enrollment. 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 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 appropriate Graduate Program Coordinator and the student; the Thesis Committee Chair will also receive a copy, if applicable. If the Office of Graduate Studies determines that a student is not eligible for advancement, the program 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.

8) Comprehensive Examination (Plan II):

The Master's Plan II requires that the student complete at least 36 units of course work, including the PBGG Core Course, and pass a comprehensive final examination (no thesis required).

9) Normative Time to Degree: Normative Time is the elapsed time (calculated to the nearest quarter) that a student would need to complete all requirements for the degree, assuming that they are engaged in full-time study and making adequate progress. The normative time for completion of Masters Plan II is 6 quarters.

10) Typical Time Line and Sequence of Events:

Population Biology Master’s Plan II Study Plan:

Year One	Fall	Winter	Spring
	PBG 200A Principles of Population Biology: single-species ecology and evolution	PBG 200B Principles of Population Biology: multi-species communities	PBG 200C Principles of Population Biology: microevolution and macroevolution
	PBG 290C Research Conference	PBG 290C Research	PBG 290C Research
	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar
	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar
	PBG 231 Mathematical Methods in Population Biology	Additional course(s) as required by Guidance Committee	PBG 271 Ecology Research
Year Two	Fall	Winter	Spring
	PBG 290C Research Conference	PBG 290C Research	PBG 290C Research
	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar
	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar
	PBG 270 Evolutionary Biology	PBG 271 Ecology Research or PBG 270 Evolutionary Biology	Additional course(s) as required by Guidance Committee
	Additional course(s) as required by Guidance Committee	Additional course(s) as required by Guidance Committee	
	Elective quantitative course	Elective quantitative course	

11) Sources of funding

The Population Biology Graduate Group agrees to provide support during the academic year in years one through two. This support can be a combination of GSR positions, Teaching Assistant and/or Reader assignments, and faculty resources when available. Students in years three and beyond are responsible for providing their own funding (which can include TAs, campus GSR/external resources, faculty resources when available). Admitting faculty will provide one quarter of summer support from their available funding

resources (most commonly grant funded GSR support) that a student may choose to accept or decline. This too is for students in years one through two. Faculty may provide additional support at their discretion.

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 Guide: <http://www.gradstudies.ucdavis.edu/publications/>

Ph.D. DEGREE REQUIREMENTS

1) Admissions Requirements:

Consideration for program admission requires a bachelor's degree, three letters of recommendation, official transcripts, GRE scores, TOEFL or IELTS score (if applicable) and Office of Graduate Studies online application with fee by the stated admission deadline. A minimum GPA of 3.0 is required. Applicants must also identify a Confirmed Major Professor: a Population Biology faculty member in good standing must confirm that they accept the student into their laboratory, and will provide financial support, access to essential resources to complete their degree, as well as mentorship until the student completes their program of study. However, admissions decisions are made on a case-by case basis. Meeting some or all of these criteria does not guarantee admission, but merely eligibility. The decision to recommend admission to the Dean of Graduate Studies will be made by the Program Admissions Committee on the basis of available space and the competitiveness of applicants compared to the eligible pool.

- a) **Prerequisites:** Students entering the graduate group are expected to have completed a set of courses that are typical in undergraduate biology majors. Certain courses are viewed as sufficiently important that entering students who have not taken them will be required to do so. These courses are:
- a one-year course in introductory biology for biology majors (e.g. BIS 1 or BIS 2 series or equivalent)
 - a one-year course in calculus (e.g. MAT 17 series or equivalent)
 - a course in statistics (e.g. STA 13 or STA 100 or equivalent)
 - an upper-division course in general ecology or population biology (e.g. EVE 101 or equivalent)
 - an upper-division course in genetics (e.g. EVE 102 or equivalent)
 - an upper-division course in evolution (e.g. EVE 100 or equivalent)
- b) **Deficiencies:** The requirements for evolution and ecology/population-biology may be met by demonstrating proficiency, as judged by the instructor, while working as a teaching assistant in these courses. The guiding committee is charged with the assignment of courses that will fulfill these requirements.

2) Dissertation Plan B:

Plan B. Specifies a three member (minimum) dissertation committee, an optional final oral examination (made on an individual student basis by the dissertation committee), and an optional exit seminar (the decision to require an exit seminar is set by the graduate program and applies to all students).

The Population Biology Graduate Group operates under Plan B. When a student passes their qualifying exam, their Guidance Committee will propose a Dissertation Committee with at least three members. At least two members, including the chair, must be members of the Population Biology Graduate Group. The committee will be appointed by the Dean of Graduate Studies.

Students are encouraged to discuss potential members in detail with their major professor and academic adviser. Faculty outside of the UC system are permitted with exception. An External Committee Membership Application will be required along with the Advancement to Candidacy – Plan B application <https://grad.ucdavis.edu/sites/default/files/upload/files/current-students/g321-phd-candidacyb.pdf>. A complete CV for the outside faculty member will be required as well. The committee will be appointed (confirmed) by the Dean of Graduate Studies. Any changes to the committee after Dean’s approve require a “reconstitution of committee” form and must be reconfirmed by the Dean.

3) Course Requirements – Core and Electives (53 units minimum)

a) Core Courses (total 20 units)

Plan II (20 Units)
PBG 200A – Principles of Population Biology – Fall Quarter – 5 units
PBG 200B – Principles of Population Biology – Winter Quarter – 6 units
PBG 200C – Principles of Population Biology – Spring Quarter – 6 units
PBG 231 – Mathematical Methods in Population Biology – Fall Quarter – 3 units
(First Year Advising Committee will consider requests to place out of this course.)

b) Seminar Requirements (total at least 24 units)

Plan II (24-36 Units) Must enroll each quarter in residence.
PBG 290 – Center for Population Biology Seminar Series – 1 unit
PBG 292 – Ecology and Evolution Seminar Series – 1 unit

c) Elective Courses (minimum 9 units)

PBGG students will take any combination of at least three classes from the following:

PBG 270 – Evolutionary Biology – 1 unit
PBG 271 – Ecology Research – 1 unit
PBG 298 – Group Study – 1-5 units
Any graduate seminar for which the instructor of record is a member of PBGG
Two elective quantitative courses – Determined by First-Year Guidance Committee

PBGG students will take at least one quarter of PBG 270; and at least one quarter of PBG 271.

PBGG students will take two elective quantitative courses. Whether a course satisfies the quantitative criterion is determined by the First Year Guidance Committee.

d) Summary:

A typical program will usually involve 50 - 70 units of course work, including seminars. (For example, 19 units for the first-year core, 12-20 for additional courses and 20-30 seminar units). Once course requirements are completed, students can take additional classes as needed, although the 12 units per quarter are generally fulfilled with a research class (299) and perhaps seminars. 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:** Students need to pass the First Year Exam given after classes at the end of the first year at the PhD level. This exam covers material in PBG 200A, PBG 200B and PBG 200C. The questions on the exam, and the evaluation of the exam, will be determined by a committee consisting of the instructors in PBG 200A, PBG 200B and PBG 200C and the chair of the Population Biology Graduate Group. If the student fails, the student will be given the option to retake (by the end of the summer) the portions of the exam that were initially failed OR, at the discretion of the examining committee, other requirements may be substituted (such as writing papers, TA'ing courses in the area where weakness was apparent, or doing a small research project). Students retaking portions of the exam must fail no more than one section in order to convert their "No Pass" to a "Pass" for the First-Year Exam.

Students will present two Center for Population Biology seminars (one of which is the exit seminar). The first seminar will occur by the end of the quarter following the quarter in which the Qualifying Examination is passed.

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 at least four Population Biology Graduate Group faculty and one Population Biology 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.

b) **Course Guidance or Advising Committee: First-Year Guidance Committee**

Each new student will be assigned a three-person First-Year Guidance Committee when they arrive on campus. This committee is made up of the student's first-year Faculty Mentor, an assigned Academic Adviser, and a third person (faculty) with interests close to those of the student. The committee will meet with new students within the first week of the Fall quarter, though prior to the start of the quarter is encouraged. Together, the committee and student will outline the courses that will be required to sit for the qualifying exam and for graduation. These requirements will be recorded on the First-Year Guidance Committee Report form, which serves as a contract between the Group and the student. This contract may be changed at any time by mutual consent of the student and the Guidance Committee.

The Guidance Committee is also charged with overseeing all aspects of a student's academic life up to the Qualifying Exam (QE) and should meet as often as is useful, but at least once every year in the Spring quarter for completion of the annual student progress report.

e) **Qualifying Exam Committee**

A five-person committee will examine the student in population biology and three other designated areas.

At least three of the examiners, including the chair, must be faculty members of the Population Biology Graduate Group. The student's major professor is not eligible to serve on the examination committee.

At least one of the examining faculty members must be from outside the faculty of the Population Biology Graduate Group. Any qualified faculty within the UC system and a member of the Academic Senate may sit on the committee. Faculty outside of the UC system may sit on your committee by exception. Non-faculty subject experts may sit on your committee by exception.

The student, in consultation with the Guidance Committee, will propose three examination areas in addition to population biology (four areas total) representing sub-disciplines of population biology such as behavior, population genetics, molecular genetics, genomics, evolution, community ecology, systematics, conservation biology, environmental physiology, mathematical theory in population biology, statistical and experimental methods in population biology, resource economics and management, paleontology, or the biology of a particular taxon (e.g., mammalogy, ornithology, entomology, invertebrate zoology). One faculty member will act as an examiner for each of these areas. A fifth faculty member will be designated to chair the qualifying exam.

The Graduate Adviser and Major Professor will review the committee membership recommendations and, on approval, will have the graduate program staff forward the committee form to the Dean of Graduate Studies, who officially appoints the committee. Once approved, Graduate Studies will send a fully signed copy of the form via PDF to the student, the student's QE chair, and the program coordinator. Concurrently, the QE chair will receive instructions for the administration of the exam.

Given that the general area of population biology will have already been extensively covered in the First-Year Exam, the faculty member assigned the area of population biology will be expected to examine the student in only those areas of population biology that relate directly to the proposed dissertation research.

The primary role of the Chair, who is not assigned a specific area for questions, is to oversee the examination.

f) **Dissertation Reading Committee:**

When a student passes their qualifying exam, their Guidance Committee will propose a Dissertation Committee with at least three members. At least two members, including the chair, must be members of the Population Biology Graduate Group. Effective 05-06: Per Graduate Studies policy, at least one faculty member will be from outside the PBGG. The committee will be appointed by the Dean of Graduate Studies.

6) Advising Structure and Mentoring:

Every entering student is assigned a **First-Year Faculty Mentor**. The Faculty Mentor is typically the person with whom the student intends to work for the duration of their Ph.D.

Should the student continue with the Faculty Mentor into their second year, this mentor will be officially recognized as the student's **Major Professor**. In other words, an official Major Professor is not assigned until the beginning of the second year.

In the beginning of the second year, the First-Year Faculty Mentor on the Guidance Committee is replaced by the student's Major Professor, who may or may not be the same person. During the second year, the Guidance Committee, in addition to its role in academic advising, has the additional responsibility to recommend a committee for the Qualifying Examination (QE), which must be scheduled no later than the Fall Quarter of the third year.

The Mentoring Guidelines can be found in on the web at:

http://www.eve.ucdavis.edu/eve/pbg/Program_Mentoring_Guideline.html

7) Advancement to Candidacy:

Every student must file an official application for Candidacy for the Degree of Doctor Philosophy, Plan B, of "Population Biology" after passing their qualifying exam and at least one quarter before completing all degree requirements; no later than the 7th quarter of enrollment. The Candidacy for the Degree of Doctor of Philosophy form can be found online at: <http://gradstudies.ucdavis.edu/current-students/forms-information>. 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 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 appropriate graduate staff person and the student; the QE Committee Chair will also receive a copy. 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.

Refer to the Graduate Council website for additional details regarding the Doctoral Qualifying Examination at <http://gradstudies.ucdavis.edu/gradcouncil/policiesall.html>.

8) Preliminary Examination, Qualifying Examination and Dissertation requirements:

a) Preliminary Examination – Not applicable.

b) Qualifying Examination

1. General Information

All students will complete all course requirements before taking their Qualifying Examination. Passing this exam makes the student eligible for advancement to candidacy. The qualifying exam should be taken by the sixth quarter and no later than the end of the seventh quarter after admission to the Ph.D. program.

The primary purpose of the Qualifying Examination (QE) is to validate that the student is academically qualified to conceptualize a research topic, undertake scholarly research and successfully produce the dissertation required for a doctoral degree. The QE must evaluate the student's command of the field, ensuring that the student has both breadth and depth of knowledge, and must not

focus solely on the proposed dissertation research. In addition, the QE provides an opportunity for the committee to provide important guidance to the student regarding his or her chosen research topic.

The Qualifying Examination will consist of written and oral examinations.

2. Written Portion of the Exam – Dissertation Prospectus

The student will give the proposal to each member of the committee no later than six weeks prior to the examination.

No later than two weeks prior to the exam, the student will discuss the proposal with each committee member. The committee members should have read the proposal carefully before this meeting and should be prepared to offer substantive feedback, if necessary, to the student.

A “perfect” draft of the proposal is not an objective of the examination process, and the student should not revise the written document before the examination.

Instead, the proposal is seen as a focal point for discussions about carrying out science in the areas chosen by the student. The examination will proceed by working outward from the proposed research, into related areas and ideas.

3. Oral Portion of the Exam

A typical exam will begin with a 15 to 20 minute oral presentation by the student of the research proposal. The next component of the exam will be faculty questions pertaining to the proposal and the broader scientific issues of the student’s three specialty areas.

In these discussions, the student should be able to respond to faculty perceptions, reactions, and criticisms of the proposal in some detail.

It is the student’s responsibility to place the proposed research within the broader context of science and it is the responsibility of the examining committee to explore the student’s understanding of scientific concepts, issues, and techniques that relate to the research.

4. Outcome of the Exam

In accordance with University policy, there are three outcomes for the qualifying examination: Pass, Not Pass, or Fail.

“Pass”

“Not Pass” – the student will be allowed to retake the exam a second time.

“Fail” – will mean dismissal from the Graduate Group.

In the case of either a Not Pass or a Fail, the committee will provide a written explanation of its decision.

If a second examination is necessary, the only possible outcomes are Pass or Fail. A Fail on the second exam will mean recommendation for disqualification from the Graduate Group.

A PhD student who fails the QE may be awarded an M.S. degree, if all course and other criteria as specified in above M.S. requirements have been successfully fulfilled.

c) The Dissertation

When a student passes their qualifying exam, their Guidance Committee will propose a Dissertation Committee with at least three members. At least two members, including the chair, must be members of the Population Biology Graduate Group. The committee will be appointed by the Dean of Graduate Studies.

1. Exit Seminar

Prior to filing a dissertation with Graduate Studies, the student is required to present a seminar based on the contents of her/his dissertation. Normally, the seminar will be given as part of the Tuesday Center for Population Biology Seminar series. If this is not possible, the seminar may be scheduled for an alternate date with proper notification made to the Center for Population Biology listserv. An announcement of the seminar to the entire Population Biology Graduate Group membership must be circulated at least one week prior to the seminar.

2. Dissertation: General Requirements

Filing of a Ph.D. dissertation with the Office of Graduate Studies is normally the last requirement satisfied by the candidate. The deadlines for completing this requirement are listed each quarter in the campus General Catalog (available online at the website of the Office of the Registrar or from the Bookstore). A candidate must be a registered student or in Filing Fee status at the time of filing a dissertation, with the exception of the summer period between the end of the Spring Quarter and the beginning of Fall Quarter. The Ph.D. Dissertation will be prepared, submitted and filed according to regulations instituted by the Office of Graduate Studies <http://gradstudies.ucdavis.edu/students/filing.html>. Satisfaction of this requirement must be verified by the Dissertation Committee Chair.

3. Dissertation:

The research conducted by the student must be of such character as to show ability to pursue independent research. The dissertation reports a scholarly piece of work of publishable quality that solves a significant scientific problem in the field and is carried out under the supervision of a member of program while the student is enrolled in the program. The chair of the dissertation committee must be a member of the program and must be immediately involved with the planning and execution of the experimental work done to formulate the dissertation. The major professor's laboratory is the setting for most of the student's research activities, unless an alternative site and immediate supervisor are approved in advance by the Executive Committee.

Students should meet regularly with their dissertation committee. The dissertation must be submitted to each member of the dissertation committee at least one month before the student expects to make requested revisions; committee members are expected to respond within 4 weeks, not including summer months for nine month faculty. Informing committee members of progress as writing proceeds helps the members to plan to read the dissertation and provide feedback within this time frame. The dissertation must be approved and signed by the dissertation committee before it is submitted to Graduate Studies for final approval.

9) Normative Time to Degree

Normative Time is the elapsed time (calculated to the nearest quarter) that students need to complete all requirements for the degree, assuming that they are engaged in full-time study and making adequate progress.

Normative Time to Advancement to Candidacy for students in the Population Biology program is 7 quarters. This represents the number of quarters needed to complete all of course requirements and pass any required exams(s).

Normative Time in Candidacy for students in the Population Biology program is 15 quarters. This represents the remaining quarters that are recommended for completion of the degree.

A typical program will usually involve 50-70 units of coursework, including seminars. (For example, 20 units for the first-year core, 12-20 for additional courses, and 20-30 seminar units.)

To be a full-time student, the university requires a graduate student to enroll for 12 units each academic quarter (this includes 299 research units). The academic quarters are Fall, Winter, and Spring. A balanced load should not include more than 16 units of 100 and 200 level courses combined in any quarter, and not more than 9 units of graded coursework in quarters when serving as a teaching assistant (TA).

Exceptions to the 12 unit rule are: part-time students, first quarter international students, and other students with special circumstances. Where there are special circumstances which make a 12 unit load difficult, Population Biology students should request that their academic adviser contact Graduate Studies.

10) Typical Time Line and Sequence of Events

Year One	Fall	Winter	Spring Complete First-Year Exam
	PBG 200A Principles of Population Biology: single-species ecology and evolution	PBG 200B Principles of Population Biology: multi-species communities	PBG 200C Principles of Population Biology: microevolution and macroevolution
	PBG 231 Mathematical Methods in Population Biology	Additional course as required by Guidance Committee	
	PBG 290 Center for Population Biology	PBG 290 Center for Population Biology	PBG 290 Center for Population Biology

	Seminar	Seminar	Seminar
	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar
	PBG 290C Research Conference	PBG 290C Research Conference	PBG 290C Research Conference
	PBG 299 Research	PBG 299 Research	PBG 299 Research
Year Two	Fall	Winter	Spring
	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar
	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar
	PBG 290C Research Conference	PBG 290C Research Conference	PBG 290C Research Conference
	PBG 299 Research	PBG 299 Research	PBG 299 Research
	PBG 270 Evolutionary Biology	PBG 271 Ecology Research	Additional course as required by Guidance Committee
	Qualifying Exam Preparation	Qualifying Exam Preparation	Qualifying Exam Preparation
Year Three	Fall QE to be taken no later than end of Fall quarter	Winter	Spring
	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar
	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar
	Additional course as required by Guidance Committee	PBG 270 Evolutionary Biology or PBG 271 Ecology Research	Elective quantitative course
	PBG 290C Research Conference	PBG 290C Research Conference	PBG 290C Research Conference
	PBG 299 Research	PBG 299 Research	PBG 299 Research
Years Four-Six	Fall	Winter	Spring
	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar	PBG 290 Center for Population Biology Seminar
	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar	PBG 292 Topics in Ecology and Evolution Seminar
	PBG 290C Research Conference	PBG 290C Research Conference	PBG 290C Research Conference
	PBG 299 Research	PBG 299 Research	PBG 299 Research

	Elective quantitative course		
	Dissertation Research and Completion		

11) Sources of funding.

The Population Biology Graduate Group agrees to provide support during the academic year in years one through five. This support can be a combination of GSR positions, Teaching Assistant and/or Reader assignments, and faculty resources when available. Students in years six and beyond are responsible for providing their own funding (which can include TAship, campus GSR/external resources, faculty resources when available). Admitting faculty will provide one quarter of summer support from their available funding resources (most commonly grant funded GSR support) that a student may choose to accept or decline. This too is for students in years one through five. Faculty may provide additional support at their discretion.

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 Guide: http://gradstudies.ucdavis.edu/students/handbook/GS201_GraduateStudentGuide.pdf.

13) Leaving the Program Prior to Completion of the PhD Requirements.

Should a student leave the program prior to completing the requirements for the PhD, they may still be eligible to receive the Masters if they have fulfilled all the requirements (see Master's section). Students can use the Change of Degree Objective form available from the Registrar's Office: http://registrar.ucdavis.edu/local_resources/forms/D065-graduate-major-degree-change.pdf.