

Comparative Pathology Graduate Group
Integrative Pathobiology (Pending Name Change)
Ph.D. AND MS DEGREE REQUIREMENTS
Revised: 2005, 2008, 2013
Graduate Council Approval: June 28, 2013

Master's Degree Requirements

1) Admissions requirements

Admission to the Integrative Pathobiology Graduate Group is open only for the Fall Quarter. It is the applicant's responsibility to ensure that all application materials are received by the on-line application system by the deadline. The priority application deadline for Integrative Pathobiology is January 15th. Applications submitted by this deadline are reviewed early and the top applicants are considered for early admission. This early deadline assures that our top applicants will meet the deadline for all internal and School of Veterinary Medicine fellowships. The general admission deadline is February 15th. The final admission deadline is April 1st. See all updated admissions deadlines at:

http://www.gradstudies.ucdavis.edu/programs/program_detail.cfm?id=28

Consideration for program admission requires a bachelor's degree, 3 letters of recommendation, official transcripts, GRE scores, TOEFL or IELTS score (if applicable), faculty sponsorship and completion of the Office of Graduate Studies online application with fee by the stated admission deadline. Application fee of \$ 80* (U.S. dollars) for domestic applications and \$100 (U.S. dollars) for international applications for each application (*subject to change). The fee may be paid by credit card or e-check.

Sponsorship: Because the program in Integrative Pathobiology is diverse, applicants are encouraged to contact and obtain sponsorship of a faculty member in the group who is willing to serve as their major professor should they be admitted. If an applicant has not identified a faculty member to serve as their sponsor, we will assist him/her in this process by forwarding his/her information to faculty within the group. There is no guarantee that a response will be received. Applicants should contact Integrative Pathobiology well in advance of the application deadline and provide a CV as well as clearly stated interests and goals in the field of Integrative Pathobiology. Admission to the Group requires acceptance by a major professor in the group in the applicant's desired field of specialization before a recommendation for admission is forwarded to the Office of Graduate Studies. The student's sponsoring major professor must be a member, or willing to become a member, of the Integrative Pathobiology Graduate Group. The sponsor must provide a letter that states his or her willingness to accept the applicant into the lab. The letter must also state that there is a project available with sufficient funding for a thesis.

Transcripts: A GPA of 3.0 or greater (on a 4.0 scale) for under graduate courses is required. Applicants with a professional degree from an AVMA-accredited veterinary school or an AMA-accredited medical school must have a GPA of 3.0 or greater for courses taken during the first two years of the professional curriculum. Academic transcripts (one each) from all schools attended after high school are required and should be sent directly to Integrative Pathobiology. The under graduate transcript must clearly state "Bachelor's Degree Awarded."

GRE scores: GRE scores from the general test (verbal, quantitative, and analytical) must be submitted. It is strongly recommended that you electronically report the GRE score directly to

the institution. The GRE code for UC Davis is 004834 and the GRE code for Comparative Pathology is 0215 (Integrative Pathobiology). ETS may have a different description for our program names but this is the correct code for Comparative Pathology (Integrative Pathobiology). The applicant should have a GRE Verbal percentage of at least 60%, a GRE Quantitative percentage of 80% and an Analytical Writing percentage of at least 50%. However, admissions decisions are made on a case-by case basis. Applicants who have received a DVM or MD from an AMVA- or AMA-accredited professional school and who have remained in a professional or post-professional capacity, are not required to submit GRE scores since similar standardized test scores were submitted for admission to the professional school.

TOEFL (International applicants only): International students who do not have a degree from an institution where English was the language of instruction must obtain a minimum score of 550 (written), 213 (computer based), or 80 for the new TOEFL iBT (iBT, internet-based) test. The minimum IELTS score is seven on a nine point scale. It is strongly recommended that you electronically report the TOEFL score directly to the institution. The TOEFL code for UC Davis is 004834 and the TOEFL code for Comparative Pathology (Integrative Pathobiology) is 56. ETS may have a different description for our program names but this is the correct code for Comparative Pathology (Integrative Pathobiology).

Three letters of recommendation: Instructions are provided with the online application. All letters of recommendation must be submitted electronically by the referee. The online application will automatically notify the referee and provide instructions on how to submit the letter. Hard copies of recommendation letters are not accepted.

Meeting 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:**

In addition to the admission requirements stated above, applicants are expected to have a strong background in Cell Biology and the equivalent of the following UC Davis courses:

| | | |
|---------|-----------------------------|---------|
| STA100 | Applied Statistics | 4 units |
| BIS 104 | Regulation of Cell Function | 3 units |

b) **Deficiencies:**

Course work deficiencies can be made up in the Fall quarter of the first academic year following initial enrollment by earning a letter grade of “B” or better. The core coursework for Integrative Pathobiology does not begin until the Winter quarter of the first academic year. Students are expected to make up deficiencies in statistics or cell biology prior to entering Integrative Pathobiology Core I.

2) Master’s Degree and Master’s Plan:

The Integrative Pathobiology Graduate Group follows the MS Plan I. This plan requires 30 units of graduate and upper division courses (the 100 and 200 series only) and, in addition, a thesis or a project in lieu of a thesis. At least 12 of the 30 units must be graduate work in the major field.

The student is subject to guidance by their major adviser regarding the distribution of his or her work. A Master's of Science degree will be awarded upon fulfillment of the degree requirements. The minimum residency requirements for the MS degree is three quarters, but the amount of time spent by most students in this program is six to nine quarters. The thesis fulfills the capstone requirement.

3) Course Requirements - Core and Electives (18 units)

a) Core Courses (18 units)

| | | |
|---------|----------------------------------|---------|
| PMI 201 | Integrative Pathobiology Core I | 5 units |
| PMI 202 | Integrative Pathobiology Core II | 4 units |
| PMI 203 | Experimental Design | 2 units |
| PMI 270 | Advanced Immunology | 3 units |

Ethics (either one of the 2 choices below)

| | | |
|---------|-------------------------------|---------|
| PLP 298 | Ethics in Scientific Research | 2 units |
|---------|-------------------------------|---------|

OR

Research Ethics, RCR Program, UC Davis- attendance at 8 seminars
<http://research.ucdavis.edu/c/cs/rcr>

| | | |
|---------|---------------------------------|--------|
| PMI 290 | Group-Specific Seminar I | 1 unit |
| PMI 290 | Group-Specific Research Seminar | 1 unit |

b) Elective Courses (0 units)

Electives should accommodate special interests of the student within the broad field of Integrative Pathobiology. Examples of fields of specialization in which electives may be taken are virology, infectious disease, immunology, pulmonary biology, environmental disease, neurobiology, developmental and stem cell biology, cancer biology, toxicology, cell biology and molecular pathobiology. There is a wide latitude in the electives that the students may pursue, although the electives must be consistent with the student's thesis project and be approved by the student's graduate adviser. Examples of electives taken by our students include:

| | | |
|----------|----------------------------------------------------|---------|
| MCB 121 | Molecular Biology of Eukaryotic Cells | 3 units |
| MCB 161 | Molecular Genetics | 3 units |
| MMI 280 | Molecular Pathology of Human and Animal Diseases | 3 units |
| MIC 262 | Advanced General and Molecular Virology | 2 units |
| BIM 189C | Clinical Applications for Biomedical Device Design | 2 units |

c) Summary

Plan I. The student is required to take a minimum of 30 quarter units of upper division and graduate course work and submit a thesis based on original research. The course requirements must be fulfilled by taking 18 units of core coursework and 12 of the 30 units must be graduate work (lab rotations) in the major field as defined by the graduate adviser and the major professor. Electives are chosen with the approval of the graduate adviser. For all students, there are 18 units of required course work. Most of the additional units are

obtained by taking research courses (XXX - 299) from the major professor or other collaborating faculty.

Full-time students must enroll for 12 units per quarter including research, academic and seminar units. 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. Courses that fulfill any of the program course requirements may not be taken S/U unless the course is normally graded S/U. Once course requirements are completed, students can take additional classes as needed, although the 12 units per quarter are generally fulfilled with research units (299) and perhaps seminars.

Students in the MS program may change the degree objective to PhD if they have outstanding progress and endorsement from their major professor. MS students wishing to change their degree objective from an MS to a PhD must complete the Change of Degree Objective form which requires signature by a faculty with admissions authority, and the student must also submit a letter from their major professor supporting the change and confirming funding commitment. Students should also note that they will have to fulfill all requirements for the PhD.

4) Special requirements N/A

5) Committees

a) Admissions Committee: Once the application completed, all supporting material, and the application fee have been received, the application will be submitted to the Admissions Committee. The committee consists of 3 members of the graduate group, the Group Master Adviser and the Group Chair. 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. Applications are accepted through April 1st for the next Fall entering class.

b) Course Guidance: Admitted students will be assigned a graduate advisor and the student and advisor will meet prior to the start of classes to plan the student's course of study. In addition to the required core courses the student's graduate adviser will recommend additional elective and seminar courses based on the student's proposed thesis project and prior academic course work. Once the core course requirements are completed, students can take additional classes as needed. Students are required to have their graduate adviser sign the annual progress report of satisfactory progress, in addition to obtaining the signature of the student's major professor.

c) Thesis Committee: The thesis committee consists of the student's major professor, who serves as the chair of the thesis committee, and two other members who do not have to be members of the Graduate Group in Integrative Pathobiology. In consultation with the student's major professor, the student proposes the composition of the committee. The student's graduate adviser must approve the committee members before submission to the Office of Graduate Studies. Thesis Committee nominations are submitted to the Office of Graduate Studies for formal appointment in accordance with Graduate Council policy. This takes place when the application for candidacy for the degree of Master of Science is

submitted. The student is expected to meet with their thesis committee at least once a year, generally just prior to submission of the student's annual progress report.

6) **Advising Structure and Mentoring**

Graduate Advisers: All graduate advisers of the group are appointed in accordance with Graduate Council policies and Graduate Studies procedures to serve as deputies in matters affecting individual graduate students and their academic programs. The graduate adviser sets the course outline for the student and provides guidance on elective courses relevant to the student's thesis. In doing so the graduate adviser ensures that all requirements of the Master's Degree are met. The Graduate Adviser is a resource for information on academic requirements, policies and procedures, and registration information.

Master Adviser: The Master Adviser of the group serves as a deputy in matters affecting individual graduate students and their academic programs. The Master Adviser oversees the individual Graduate Advisers and provides uniformity in student advising. The master adviser maintains records of each student's performance. Forms and petitions used by graduate students must be signed by an adviser or the Master Adviser.

Major Professor: The major professor is the faculty member who provides detailed supervision of a student's thesis project and whose laboratory is usually the setting for most of the student's research activities. The major professor is the Chair of the Thesis Committee.

Graduate Adviser (staff): The Graduate Program Staff assist students with identifying a major professor, identifying appointments, identifying funding and fellowship opportunities and general university policies and procedures to advance through the program.

The **Mentoring Guidelines** can be found at:

<http://www.gradstudies.ucdavis.edu/gradcouncil/mentoring.pdf>

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; this is typically the Spring Quarter.

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 staff person 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 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.

8) Thesis Requirements:

Thesis committee meetings: The candidate and major professor should meet at least once a year with the other members of the thesis committee to discuss progress and any changes in research objectives. During the annual meeting with the Master Adviser, the candidate will be asked about the timing and occurrence of thesis committee meetings.

Thesis: Research for the Master's thesis is to be carried out under the supervision of a faculty member of the program and must represent an original contribution to knowledge in the field. The thesis research must be conducted while the student is enrolled in the program. The thesis must be filed in a quarter in which the student is registered or on filing fee. 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 for final approval. Should the committee determine that the thesis is unacceptable, a recommendation to disqualify the student will be made to the Dean of Graduate Studies. The group strongly recommends that at least one manuscript derived from the thesis be submitted for publication in a peer-reviewed journal before the thesis is finally approved.

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.

An exit seminar is required. Satisfaction of this requirement should be verified by the Thesis Committee Chair.

9) Normative Time to Degree:

The Normative Time in Candidacy is six quarters. Students can complete all of their course work requirements within one year (3 quarters) and theoretically, could complete their thesis within the remaining year if the thesis committee approves. However, Master's degree students typically fulfill their thesis requirement in two to three years (six to nine academic quarters).

10) Typical Time Line and Sequence of Events:

| Year One | Fall | Winter | Spring (advancement to MS candidacy) |
|----------|--------------------------------------------------------------------|-----------------------------------------|------------------------------------------|
| | STA100 Statistical Analysis or BIS 104 Regulation of Cell Function | PMI 201 Integrative Pathobiology Core I | PMI 202 Integrative Pathobiology Core II |
| | Electives or Coursework Deficiencies | PMI 270 Advanced Immunology | PMI 290 Seminar |
| | | PLP 298 Ethics in Scientific Research | |
| | | | |
| Year Two | Fall | Winter | Spring (Thesis due) |
| | PMI 203 Experimental Design | | |
| | PMI 290 Research Seminar | | |

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11) Sources of funding

MS students can be fully supported financially from research funding from their major professor or they can be self-supporting (own funding source). Funding can be augmented by graduate group funding (UCD Graduate Fellowship), private foundations, or fellowships.

12) PELP, In Absentia and Filing Fee status.

Students are eligible to apply for the Planned Educational Leave Program (PELP), and after advancement to candidacy, can apply for filing fee status. Rules and Regulations 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/> .

Format for Ph.D. Degree Requirements

1) Admissions Requirements:

Admission to the Integrative Pathobiology Graduate Group is generally open only for the Fall Quarter. It is the applicant's responsibility to ensure that all application materials are received by the on-line application system by the deadline. The priority application deadline for Integrative Pathobiology is January 15th. Applications submitted by this deadline are reviewed early and the top applicants are considered for early admission. This early deadline assures that our top applicants will meet the deadline for all internal and School of Veterinary Medicine fellowships. The general admission deadline is February 15th. The final admission deadline is April 1st. See all updated admissions deadlines at: http://www.gradstudies.ucdavis.edu/programs/program_detail.cfm?id=28

Consideration for program admission requires a bachelor's degree, three letters of recommendation, official transcripts, GRE scores, TOEFL or IELTS score (if applicable), faculty sponsorship and completion of the Office of Graduate Studies online application with fee by the stated admission deadline. Application fee of \$ 80* (U.S. dollars) for domestic applications and \$ 100 (U.S. dollars) for international applications for each application (*subject to change). The fee may be paid by credit card or e-check.

Sponsorship: Because the program in Integrative Pathobiology is diverse, applicants are encouraged to contact and obtain sponsorship of a faculty member in the group who is willing to serve as their major professor should they be admitted. If an applicant has not identified a faculty member to serve as his/her sponsor, we will assist them with this process. Applicants should contact Integrative Pathobiology well in advance of the application deadline and provide a CV as well as clearly stated interests and goals in the field of Integrative Pathobiology. Admission to the Group requires acceptance by a major professor in the group in the applicant's desired field of specialization before a recommendation for admission is forwarded to the Office of Graduate Studies. The student's sponsoring major professor must be a member, or willing to become a member, of the Integrative Pathobiology Graduate Group. The sponsor must provide a letter that states his or her

willingness to accept the student into the lab. A project should be available for the applicant. Also, funding sources for fees and stipend should be available and stated in the letter.

Transcripts: A GPA of 3.0 or greater (on a 4.0 scale) for undergraduate courses is required. Applicants with a professional degree from an AVMA-accredited veterinary school or an AMA-accredited medical school must have a GPA of 3.0 or greater for courses taken during the first two years of the professional curriculum. Academic transcripts (one each) from all schools attended after high school are required and should be sent directly to Integrative Pathobiology. The undergraduate transcript must clearly state “Bachelor’s Degree Awarded.”

GRE scores: GRE scores from the general test (verbal, quantitative, and analytical) must be submitted. It is strongly recommended that you electronically report the GRE score directly to the institution. The GRE code for UC Davis is 004834 and the GRE code for Comparative Pathology (Integrative Pathobiology) is 0215. ETS may have a different description for our program names but this is the correct code for Comparative Pathology (Integrative Pathobiology). The applicant should have a GRE Verbal percentage of at least 60%, a GRE Quantitative percentage of 80% and an Analytical Writing percentage of at least 50%. However, admissions decisions are made on a case-by case basis. Applicants who have received a DVM or MD from an AMVA- or AMA-accredited professional school and who have remained in a professional or post-professional capacity, are not required to submit GRE scores since similar standardized test scores were submitted for admission to the professional school.

TOEFL (International applicants only): International students who do not have a degree from an institution where English was the language of instruction must obtain a minimum score of 550 (written), 213 (computer based), or 80 for the new TOEFL iBT (iBT, internet-based) test. The minimum IELTS score is seven on a nine point scale. It is strongly recommended that you electronically report the TOEFL score directly to the institution. The TOEFL code for UC Davis is 004834 and the TOEFL code for Comparative Pathology (Integrative Pathobiology) is 56. ETS may have a different description for our program names but this is the correct code for Comparative Pathology.

Three letters of recommendation: Instructions are provided with the online application. All letters of recommendation must be submitted electronically by the referee. The online application will automatically notify the referee and provide instructions on how to submit the letter. Hard copies of recommendation letters are not accepted.

Meeting 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:**

In addition to the admission requirements stated above, applicants are expected to have a strong background in Cell Biology and the equivalent of the following UC Davis courses:

| | | |
|---------|-----------------------------|---------|
| STA100 | Applied Statistics | 4 units |
| BIS 104 | Regulation of Cell Function | 3 units |

b) Deficiencies:

Course work deficiencies can be made up in the fall quarter of the first academic year following initial enrollment by earning a letter grade of “B” or better. The core course work for Integrative Pathobiology does not begin until the winter quarter of the first academic year. Students are expected to make up deficiencies in statistics or cell biology prior to entering Integrative Pathobiology Core I.

2) Dissertation Plan:

The degree of Doctor of Philosophy is given under dissertation Plan B. An exit seminar is required.

3) Course Requirements - Core and Electives (20 units)

a) Core Courses (20 units)

| | | |
|----------|-----------------------------------------------------------------------------------------|---------|
| PMI 201 | Integrative Pathobiology Core I | 5 units |
| PMI 202 | Integrative Pathobiology Core II | 4 units |
| PMI 203 | Experimental Design | 2 units |
| PMI 270 | Advanced Immunology | 3 units |
| Ethics | (either one of the 2 choices below) | |
| PLP 298 | Ethics in Scientific Research | 2 units |
| | OR | |
| | Research Ethics, RCR Program, UC Davis- attendance at 8 seminars | |
| | http://research.ucdavis.edu/c/cs/rcr | |
| PMI 290 | Group-Specific Seminar I | 1 unit |
| PMI 290 | Group-Specific Research Seminar | 1 unit |
| Variable | Research Seminars (2) | 2 units |

b) Elective Courses (0 units required)

Electives should accommodate special interests of the student within the broad field of Integrative Pathobiology. Examples of fields of specialization in which electives may be taken are virology, infectious disease, immunology, pulmonary biology, environmental disease, neurobiology, developmental and stem cell biology, cancer biology, toxicology, cell biology and molecular pathobiology. There is a wide latitude in the electives that the students may pursue, although the electives must be consistent with the student’s thesis project and be approved by the student’s graduate adviser. Examples of Electives taken by our students include:

| | | |
|----------|----------------------------------------------------|---------|
| MCB 121 | Molecular Biology of Eukaryotic Cells | 3 units |
| MCB 161 | Molecular Genetics | 3 units |
| MMI 280 | Molecular Pathology of Human and Animal Diseases | 3 units |
| MIC 262 | Advanced General and Molecular Virology | 2 units |
| BIM 189C | Clinical Applications for Biomedical Device Design | 2 units |

c) Summary:

The student is required to take a minimum of 30 quarter units of upper division and graduate course work and submit a thesis based on original research. The course requirements must be fulfilled by taking 20 units of core coursework and 10 of the 30 units must be obtained by taking research courses (XXX - 299) from the major professor or other collaborating faculty. Additional elective courses can be chosen with the approval of the graduate adviser.

Full-time students must enroll for 12 units per quarter including research, academic and seminar units. 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. Courses that fulfill any of the program course requirements may not be taken S/U unless the course is normally graded S/U. 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.

4) Special Requirements

There are no special requirements for the completion of the PhD degree.

5) Committees

a) Admissions Committee: Once the application has been completed and all supporting material, and the application fee have been received, the application will be submitted to the Admissions Committee. The committee consists of 3 members of the graduate group, the Group Master Adviser and the Group Chair. 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. Applications are accepted through April 1st for the next fall entering class.

b) Course Guidance: Admitted students will be assigned a graduate advisor and the student and advisor will meet prior to the start of classes to plan the student's course of study. In addition to the required core courses the student's graduate adviser will recommend additional elective and seminar courses based on the student's proposed thesis project and prior academic course work. Once the core course requirements are completed, students can take additional classes as needed, although, generally, students fulfill the minimum number of units with a research class (299). Students are required to have their graduate adviser sign the annual progress report of satisfactory progress, in addition to obtaining the signature of the student's major professor.

c) Qualifying Examination Committee: The student, in consultation with his/her major professor and graduate advisor, nominates five faculty to serve on the Examination Committee. If the student has been admitted to a Designated Emphasis (DE), the Director of the DE must also approve the QE application before it is submitted. One member of the DE must be part of the qualifying examination committee. These nominations are submitted to the Office of Graduate Studies for formal appointment in accordance with Graduate Council policy. The major professor does not serve as Chair of the committee.

The QE Committee conducts the exam and submits results to the Office of Graduate Studies.

d) Dissertation Committee: The dissertation committee consists of the student's major professor, who serves as the Chair of the dissertation committee, and two other members who do not have to be members of the Graduate Group in Integrative Pathobiology. In consultation with the student's major professor, the student proposes the composition of the committee. The student's graduate adviser must approve the committee members before submission to the Office of Graduate Studies. The composition of the dissertation committee is entered on the Advancement to Candidacy Form. Thesis Committee nominations are submitted to the Office of Graduate Studies for formal appointment in accordance with Graduate Council policy. The student is expected to meet with their dissertation committee at least once a year, generally just prior to submission of the student's annual progress report. The role of the Dissertation Committee is to advise the doctoral student on the research topic and methods, and then to review the final completed dissertation for acceptance. The Committee Chairperson (Major Professor) should determine the desires of the individual members regarding assistance with the research and dissertation review at the time the dissertation committee is constituted. Dissertation committee members are expected to read and comment on a dissertation within four weeks from its submission. This time limit policy does not apply to summer periods for faculty holding nine-month appointments. The student and faculty will coordinate a timeline for the student to present the thesis to the dissertation committee. This timeline must allow all dissertation committee members enough time to fulfill their responsibilities within the four-week deadline. The group strongly recommends that at least one manuscript derived from the dissertation be submitted for publication in a peer-reviewed journal before the dissertation is finally approved. An exit seminar is required. Satisfaction of this requirement should be verified by the Dissertation Committee Chair.

6) Advising Structure and Mentoring:

Graduate Advisers: All graduate advisers of the group are appointed in accordance with Graduate Council policies and Graduate Studies procedures to serve as deputies in matters affecting individual graduate students and their academic programs. The graduate adviser sets the course outline for the student and provides guidance on elective courses relevant to the student's thesis. In doing so the graduate adviser ensures that all requirements of the PhD Degree are met. The Graduate Adviser is a resource for information on academic requirements, policies and procedures, and registration information.

Master Adviser: The Master Adviser of the group serves as a deputy in matters affecting individual graduate students and their academic programs. The Master Adviser oversees the individual Graduate Advisers and provides uniformity in student advising. The master adviser maintains records of each student's performance. Forms and petitions used by graduate students must be signed by an adviser or the Master Adviser.

Major Professor: The major professor is the faculty member who provides detailed supervision of a student's thesis project and whose laboratory is usually the setting for most of the student's research activities. The major professor is the Chair of the Thesis Committee.

Graduate Program Staff: The Graduate Program Staff assist students with identifying a major professor, identifying appointments, identifying funding and fellowship opportunities and general university policies.

The **Mentoring Guidelines** can be found at:

<http://www.gradstudies.ucdavis.edu/gradcouncil/mentoring.pdf>

7) **Advancement to Candidacy**

Before advancing to candidacy for a doctoral degree, a student must have satisfied all requirements set by the graduate program, must have maintained a minimum GPA of 3.0 in all course work undertaken (except those courses graded S or U), and must have passed a Qualifying Examination (QE) before a committee appointed to administer that examination. Normally, students advance by the end of the 6th quarter; students must pass their QE by the end of the 9th quarter in order to remain eligible for academic appointments (TA, GSR, AI, etc.). The student must file the appropriate paperwork with the Office of Graduate Studies and pay the candidacy fee in order to be officially promoted to Ph.D. Candidacy. Refer to the Graduate Council website for additional details regarding the Doctoral Qualifying Examination at

<http://gradstudies.ucdavis.edu/gradcouncil/policiesall.html>.

8) **Qualifying Examination and Dissertation requirements:**

Qualifying Examination

1. General Information

All students will complete all course requirements before taking their Qualifying Examination (QE). Passing this exam makes the student eligible for advancement to candidacy. The qualifying exam should be taken by the 6th quarter and no later than the end of the 9th quarter after admission to the Ph.D. program.

The primary purpose of the 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/her chosen research topic.

The QE will consist of written and oral examinations.

2. Written Portion of the Exam – Dissertation Prospectus

The written portion of the exam consists of a research proposal called the Dissertation Prospectus. The prospectus should be provided to members of the qualifying examination committee at least 10 days before the qualifying exam. The prospectus is an independently prepared proposal describing the student's dissertation-specific research aims, hypotheses, progress to date, and experimental approach. It should not exceed five typed pages, not including references and figures. Concepts within the research proposal can be discussed with others (such

as the student's major professor and peers), but the writing of the proposal should be solely the student's work (i.e., no editorial assistance is allowed) as the proposal will serve as evidence of the student's proficiency in scientific writing. The prospectus should not be shared with the QE examiners for the intended purpose of receiving feedback prior to the QE.

The QE committee will be responsible for assessing that the student's writing proficiency is satisfactory before advancement to candidacy. Furthermore, the prospectus will provide information that may be discussed during the oral exam.

3. Oral Portion of the Exam

The oral portion of the qualifying exam will be 2-3 hours in length and is intended to demonstrate the student's critical thinking ability, powers of imagination and synthesis, and broad knowledge of the field of study. Students are evaluated on their general knowledge and background related to their dissertation proposal, with special emphasis placed on scientific reasoning, knowledge of relevant literature, experimental design, interpretation of expected results, and alternative experimental designs. For the portion of the examination related to the specialty topics, students are expected to demonstrate a good working knowledge of the basics of Integrative Pathobiology, and two other specialty topics.

4. Outcome of the Exam

The committee will reach a decision on the student's performance immediately after the oral exam. The committee, having reached a unanimous decision, shall inform the student of its decision to:

- "Pass" (no conditions may be appended to this decision),
- "Not Pass" (the Chair's report should specify whether the student is required to retake all or part of the examination, list any additional requirements, and state the exact timeline for completion of requirements to achieve a "Pass"), or
- "Fail".

If a unanimous decision takes the form of "Not Pass" or "Fail", the Chair of the QE committee must include in its report a specific statement, agreed to by all members of the committee, explaining its decision and must inform the student of its decision. Having received a "Not Pass" the student may attempt the QE one additional time; the QE report must list the specific conditions and timing for the second exam. After a second examination, a vote of "Not Pass" is unacceptable; only "Pass" or "Fail" is recognized. Only one retake of the qualifying examination is allowed. Should the student receive a "Fail" on the first or second attempt at the exam, the student will be recommended for disqualification from the program to the Dean of Graduate Studies. In the event of a split committee vote, the chair of the QE committee will inform the student that the committee is divided and submit to Graduate Studies, with a copy to the student's file, a written summary of the committee vote and decision, accompanied by text supporting individual viewpoints. Text should address the student's performance in the

individual areas of the examination, as well as performance overall. Graduate Council has authorized the Dean of Graduate Studies to make the final decision when the committee does not reach a unanimous decision.

The Dissertation

1. Exit Seminar

The dissertation follows Plan B with a required exit seminar. Satisfaction of this requirement must be verified by the Dissertation Committee Chair. The Exit Seminar is a formal public presentation of the student's research before the program faculty and students. This presentation can be arranged with the staff of the graduate group or with the staff of the student's home department. The exit seminar can be scheduled throughout the year. The Dissertation Committee will not sign the Dissertation until after the exit seminar has taken place. Adequate scheduling of the exit seminar is the responsibility of the student.

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 PhD. 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 the major professor 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

The minimum registration time required by the university is 6 regular quarters, but the normative time for students with a PhD degree objective is 4 to 6 years. Assuming that students are engaged in full-time study and making adequate progress, the Normative Time to Advancement to Candidacy is 6 quarters and the Normative Time in Candidacy is 2-4 years.

10) Typical Time Line and Sequence of Events

| Year One | Fall | Winter | Spring |
|-----------------|--------------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------|
| | STA100 Statistical Analysis or BIS 104 Regulation of Cell Function | PMI 201 Integrative Pathobiology Core I | PMI 202 Integrative Pathobiology Core II |
| | Electives or Coursework Deficiencies | PMI 270 Advanced Immunology | PMI 290 Seminar |
| | | PLP 298 Ethics in Scientific Research | Research Seminar |
| | | | |
| Year Two | Fall | Winter | Spring |
| | PMI 203 Experimental Design | Dissertation Research | Qualifying Exam completed Advancement to PhD candidacy |
| | PMI 290 Research Seminar | | |
| | Research Seminar | | |
| | | | |
| Years Three-Six | Fall | Winter | Spring |
| | Dissertation Research and Completion | Dissertation Research and Completion | Dissertation Research and Completion |
| | | | Exit Seminar |

11) Sources of funding.

PhD students can be fully supported financially from research funding from their major professor or students can potentially be supported from training grants, internal graduate group fellowship funds, external fellowships and/or private foundations. Veterinarians can augment their funding through application for funding through the School of Veterinary Medicine Graduate student support program and/or REACH funding. PhD students cannot be self-supporting in the Integrative Pathobiology Graduate Group.

12) PELP, In Absentia and Filing Fee status.

Students are eligible to apply for the Planned Educational Leave Program (PELP), and, after advancement to candidacy, can apply for filing fee status. Information about PELP, 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/>

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 Masters section). Students can use the Change of Degree Objective form available from the Registrar's Office:

<http://registrar.ucdavis.edu/PDFFiles/D065PetitionForChangeOfGraduateMajor.pdf>