

May 16, 2019

HUAIJUN ZHOU, CHAIR
Immunology Graduate Group

RE: Immunology Graduate Group Degree Requirements

Enclosed is a copy of the Immunology graduate degree requirements as approved by Graduate Council on May 14, 2019. These degree requirements are now the official requirements for the Immunology Graduate Group and will be posted on the Office of Graduate Studies program webpage:

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

Thank you for your efforts on behalf of graduate education.

Sincerely,

A handwritten signature in black ink, appearing to read "C. Arnett". The signature is fluid and cursive, with a large initial "C" and a stylized "A".

Carlee Arnett, Chair
Graduate Council

CC: Amanda Kimball, Graduate Studies Analyst
Jessica Drushell, Graduate Group Coordinator
Felicia Murdoch, Educational Policy Committee Analyst

GRADUATE GROUP IN IMMUNOLOGY

Ph.D. AND M.S. DEGREE REQUIREMENTS

Revised: 2009; January 11, 2010

Graduate Council Approval: May 14, 2019

MASTER'S PROGRAM

1. Admissions Requirements for the Masters in Science

The Graduate Group in Immunology (GGI) confers Masters in Science degree conducted either under “Plan I” (written thesis) or “Plan II” (comprehensive exam). GGI does not directly admit students to the Masters Plan II program. Instead, under exceptional circumstances, the Executive Committee of GGI may support students initially admitted to the PhD program subsequently to apply for a change their degree objectives to a Masters Plan II.

For direct admissions to the Masters Plan I, the applicant must fulfill the following admissions requirements:

- Hold a Bachelor’s degree in a natural or physical science or engineering program
 - Meet the University of California minimum GPA requirement for admission, currently at 3.0.
 - Applicants who have not studied at an English speaking University must have done an English proficiency examination for international students (TOEFL or other University approved examination such as the IELTS) and must meet the Office of Graduate Studies minimum TOEFL score requirement (or equivalent for other University-approved examination).
 - Have identified a sponsoring faculty who is a member of GGI and has pledged to provide scientific guidance for the student.
 - Provide three letters of recommendation. Letters from faculty familiar with the applicant's research accomplishments are of particular value to the evaluation process. One of the letters should be from the sponsoring faculty member of GGI.
 - Provide a Statement of Purpose.
 - Provide a Statement of Personal History.
 - Students are also encouraged to submit a curriculum vita or resume with their application documents.
- a) **Prerequisites:** In addition, applicants are expected to have successfully completed upper division undergraduate courses in the biological sciences, e.g. immunology, microbiology, chemistry, biochemistry, cell biology and/or genetics. While there are no minimum course requirements, the record of the student should demonstrate aptitude and interest in the areas covered in courses such as (examples only): BIS 101 (Genes and Gene Expression), BIS 102 (Structure Function of Biomolecules), BIS 104 (Regulation of Cell Function), BIS 120 (Cell and Molecular Biology), CHEM 107A +B (Physical Chemistry for Life Sciences), CHEM 118A – C (Organic Chemistry for Health and Life Science), CHEM 128A-C (Organic Chemistry), MIC102 (General Bacteriology), MIC 140 (Bacterial Physiology), MIC 150 (Bacterial Genetics), PMI 126 (Immunology), PMII28 (Animal Virology). They are also expected to have gained some relevant research experience prior to entering the program.

- b) **Deficiencies.** Course work deficiencies should be made up by the end of the first academic year following initial enrollment by earning a letter grade of “B” or better.

2) **Master of Science (M.S.) in Immunology, Plans I and II:**

GGI’s Master of Science degree programs is conducted either under Plan I or II in accordance with regulation 500 of the Davis Division Academic Senate Regulations on the Web at the URL: http://www.mrak.ucdavis.edu/senate/ddregulations_0405_revisions.pdf

Plan I. This plan requires 30 units of graduate and upper division courses (the 100 and 200 series only) and, in addition, a thesis. The students must take the below listed coursework, which will ensure that more than 12 of the 30 units are graduate work in the major field.

Plan II. This plan requires 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 is required of each candidate. No thesis is required. GGI does not admit master’s students to the MS Plan II, but PhD students may complete the Plan II requirements to earn an MS degree either en route, or as a change in their degree objective.

3) **Course Requirements**

Core Courses, Plan I students (12 units):

IMM201 Basic Immunology	(4 units)
IMM201L Work in progress	(4 units)
IMM293 Current concepts in Immunology	(4 units)

Core Courses, Plan II students (8 units):

IMM201 Basic Immunology	(4 units)
IMM293 Current concepts in Immunology	(4 units)

Selective Courses (6-10 units):

The following classes are “selectives” for the Immunology Graduate Group course offerings. Students enrolled in the Masters Plan I and II must take a minimum of 3 classes, i.e. a minimum of 6 – 10 units, from the list below.

Required selectives: Three courses selected from:

IMM292 Innate Immunity*	(2 units)
IMM294 Comparative Clinical Immunology	(4 units)
IMM295 Cytokines	(3 units)
IMM297 Mucosal Immunology	(2 units)
RAL209 Current Topics in Immunology: From Presentations to Grants	(3 units)
NUT 251 Nutrition and Immunity	(2 units)

*Course under development. Planned first offering: Spring of 2010.

Petition for Course waiver for Plan I students. To provide sufficient time for a student to take additional coursework in an area outside Immunology but closely related to the student's Masters thesis project, which could otherwise not be met through the taking of electives (see below), a GGI Master Plan I student may petition the Executive Committee of GGI for release of a maximum of two selectives, but not core classes, in lieu of other graduate level or upper division undergraduate level classes that carry similar unit numbers. No petition may be granted to Masters Plan II students.

Seminars (2-3 units each year):

M. S. Plan I and Plan II students must take one participation seminar and one non-participation seminar for each year of enrollment (i.e. 2-3 units/year). Below is a list of seminars offered by members of GGI. Other seminars offered on the UC Davis campus might be taken in lieu of, or in addition to those listed below.

Seminars - One participation and one non-participation seminar per student per year. Listed classes are examples only.

IMM296 Advanced Topics in Immunology	(2 units, non-partic.)
MMI 209 Seminars in Microbiology and Immunology	(1 unit, non-partic)
PMI 290 What's up at the CCM	(1 unit, non-partic.)
PMI 291A Seminars in Immunology	(1 unit, participatory)
PMI 298 Immunology Breakfast Club	(1 unit, participatory)

Electives (4-8 units):

In addition to the courses outlined above, Masters students are expected to take 4 – 8 units of Elective Classes such as additional selectives, statistics, scientific writing or other classes that provide the Masters students with additional research tools and skill sets. Classes should be graduate level or upper division courses.

Summary:

All full-time GGI students enrolled in Master Plans I or II will be enrolled in a minimum course load of 12 units each academic quarter. For the duration of the studies, Masters Plan I student will enroll in graduate level coursework consisting of core classes (12 units), selectives (6 – 10 units), seminars (2-3 units/year), 4 – 8 units of upper division or graduate level electives, as well as 299 research units for a minimum of 30 units.

Masters Plan II students will similarly enroll in graduate level coursework consisting of core classes (8 units), selectives (minimum 6 – 10 units), seminars (2- 3 units/ year) as well as 4 – 8 units of upper division or graduate level electives and 299 research units for a minimum of 36 units. The core classes, selectives, and seminars listed here are all graduate level classes in the major field of Immunology that can be used toward the 18 unit requirements.

Appendix 1 provides an example of a Study Plan for the Masters Plan I or II.

4) Special requirements

GGI Masters students in Plan I are expected to present their research as a poster at the GGI Annual Retreat (February of each year) in their second year of study and, if applicable, yearly thereafter. They are also encouraged to present their research in form of an oral departmental seminar towards the end of their studies. The nine-quarter rule (Directive #92-122 from the Office of Graduate Studies, July 21, 1992) applies to all GGI students consistent with the policies developed by Graduate Council.

Students who have not obtained a previous degree at an approved English-medium institution or

demonstrated English-language proficiency through an appropriate exam (e.g. TOEFL) are required to complete appropriate English-language courses, as described in the policy Graduate Student Course Requirements – English as Second Language (GC2018-02). Courses taken in satisfaction of this requirement do not count towards the units required for graduation

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 is the Executive Committee of GGI. The Executive Committee invites two GGI students in good standing to participate in the interview process (see below) and to act as full voting members for the purpose of recommending to Graduate Studies the most competitive applicants for admission. Student representatives are chosen by the GGI student body. The Admissions Committee is chaired by the Graduate Group Chair and consists of the 2 students, 3 elected members of the GGI faculty as well as the student advisors (currently 4). All members of the Executive Committee have equal voting rights according to the bylaws of GGI. All members on the committee review all applications. Based on a review of each entire application, a decision is made to either reject the application, or to invite the applicant to attend the recruitment event. The recruitment event includes a formal interview by a panel of GGI faculty members. Each panel includes at least one member of the Admissions Committee. A separate interview with GGI students is to be held.

An alternate on-site interview date may be offered to interested students that have conflicts with the date of the recruitment weekend. Applicants attending the alternate event are interviewed by the Chair of GGI or his/her designate, at least one other member of the Admissions Committee, as well as other interested faculty. Enrolled GGI students will interview the candidate in an informal setting.

Under exceptional circumstances interviews will be conducted by phone. A panel of 3 faculty members will conduct the interviews, at least one of the faculty serves on the Admissions Committee.

Following completion of all interviews the interviewing panels (students and faculty separate) rank the applicants and make their recommendations to the Admissions Committee. Based on the available information from the online application and the personal interview, the Admissions Committee makes a recommendation to the Dean of Graduate Studies to either accept or reject an applicant's request for admission; the Dean of Graduate Studies has power of final admissions decisions. A ranked waitlist may be established from which additional applicants are selected should spaces open up.

b) **Graduate Adviser**

Entering Masters Students are assigned one of the (currently 4) student advisers, who will act as their graduate advisers for the duration of their studies. The graduate adviser will explain and help to implement the GGI study plan, which outlines the course requirements, including the need for enrollment in a minimum of 12 units/quarter. These 12 units can be made up of required and elective courses and 299s. Each Plan I student is given a Study Plan for Masters Plan I Students upon entering the program. The most recent Study Plan for Masters Plan I students is also listed on the GGI website (immunology.compmed.ucdavis.edu).

c) **Thesis Committee (Plan I students)**

The Masters Plan I student, in consultation with his/her major professor and graduate advisor, nominate 3 faculty to serve on the Thesis Committee. The major professor serves as the Chair of the committee. These nominations are submitted to the Office of Graduate Studies for formal appointment in accordance with Graduate Council policy (DDB 80, Graduate Council B.1.).

d) **Comprehensive Examination Committee (Plan II students)**

Under exceptional circumstances a student enrolled in the GGI PhD or Masters in Science Plan I program might request to change the degree objectives to a Masters in Science Plan II. If recommended by the student's advisor, in consultation with the major professor, a three faculty member Comprehensive Examination Committee will be assembled to conduct a comprehensive examination that covers depths and breadth of knowledge in Immunology. The Masters Plan II student, in consultation with his/her major professor and graduate advisor, nominate the Examination Committee to the Executive Committee for approval.

A Graduate Studies-approved PhD qualifying examination committee (see PhD program) can serve as the Masters Plan II Comprehensive Examination Committee. If the qualifying examination committee fails the PhD student relative to PhD criteria, they may deem performance sufficient to meet the requirements of a Master's level exam.

6) **Advising Structure and Mentoring**

The **Major Professor** is the faculty member who supervises the student's research and thesis; this person serves as the Chair of the **Thesis Committee**, which will meet with the student in regular intervals, at least once a year. The **Graduate Advisor**, who is appointed by the Chair of the program, is a resource for information on academic requirements, policies and procedures, and registration information. The advisor serves the student for the duration of their studies. The **Mentoring Guidelines** are sent to each mentor at the beginning of the first year of the student entering the program. They can also be found in the graduate student handbook, a hardcopy of which is provided to every incoming GGI student. In addition both the guidelines and the student handbook can be found and downloaded from the GGI website (<http://immunology.compmed.ucdavis.edu>).

7) **Advancement to Candidacy**

“Every student must file an official application for Candidacy for the Degree of “Master of Immunology” after completing one-half of their course requirements and at least one quarter before completing all degree requirements. The Candidacy for the Degree of Master form can be found online at: <http://www.gradstudies.ucdavis.edu/forms/>. A completed form includes a list of courses the student will take to complete degree requirements. If changes must be made to the student's course plan after s/he has advanced to candidacy, the Graduate Adviser must recommend these changes to Graduate Studies. Students must have their Graduate Adviser and thesis committee Chair sign the candidacy form before it can be submitted to Graduate Studies. If the candidacy is approved, the Office of Graduate Studies will send a copy to: the Thesis Committee Chair, the GGI graduate staff person, and the

student. If the Office of Graduate Studies determines that a student is not eligible for advancement, the department and the student will be told the reasons for the application's deferral. Some reasons for deferring an application include: grade point average below 3.0, outstanding "I" grades in required courses, or insufficient units."

8) **Comprehensive Examination and Thesis Requirements**

a) **Thesis Requirements (Plan I)**

Students enrolled in the Masters Plan I in Immunology are required to file a written thesis with Graduate Studies following approval by all members of the thesis committee. Students file their written thesis once they have advanced to candidacy. Students must be registered or in current filing fee status at the time of filing. The format of the thesis should follow the guidelines as outlined by Graduate Studies at <http://gradstudies.ucdavis.edu/students/filing.html>. The student is encouraged to prepare his/her results as a manuscript for publication, which can be used as the main body of the thesis together with a brief introduction that places the manuscript in the context of the current literature and concluding remarks at the end of the study. Samples of successfully submitted Masters Theses can be viewed in the GGI business office.

b) **Comprehensive Examination (Plan II)**

GGI does not admit master's students to the MS Plan II, but PhD students may complete the Plan II requirements to earn an MS degree either en route, or as a change in their degree objective. Students may take the comprehensive examination once they have advanced to candidacy. The comprehensive examination for the Masters Plan II degree in Immunology consists of two components: Preparation of a written scientific essay and an oral examination on materials covered in the curriculum (capstone requirements). The oral examination will usually be held during or after the Spring quarter of the year the student will graduate, but not before all core courses are taken successfully and the student is expected to fulfill all degree requirement in the ongoing quarter. The student in discussion with the major professor will select a topic in immunology that has to be approved by the Chair of the comprehensive examination committee. The student will write a 1,600 – 1,800 word manuscript plus references on that topic, in which s/he will critically evaluate the current stand of knowledge in the field. The essay should follow the format and content of a viewpoint or critical review article, such as those found in the journal "Trends in Immunology". The major professor may guide the students in the writing. The manuscript must be submitted to all members of the thesis committee at least 14 days prior to the oral examination.

The oral examination will be divided into two parts. The first part is a discussion on the content and style of the written component. The student will be questioned on background of the covered material and asked to articulate the major rationale and the ideas brought forward in that manuscript. In the second part each member of the comprehensive examination committee will question the student on depth and breadth of knowledge in Immunology as covered in the Immunology classes the student has taken. The results of all examinations must be reported to Graduate Studies using the Master's Report Form (<http://www.gradstudies.ucdavis.edu/forms/>). Students taking the exam must be registered or in current filing fee status at the time of the exam.

The student may pass both parts of the examination or may "not pass" or "fail" the written and/or oral part of the examination. A student who fails all or parts of the exam is subject to disqualification from further graduate work in the program. Students who "pass" the oral but who receives a "not pass" on the written examination may be asked

to provide a rewritten proposal to the members of the examination committee in a timeframe specified by the committee. Students who do not pass the oral examination part may retake the entire or parts of the exam, as specified by the examination committee. Retaking of all or components of the comprehensive examination must be agreed to by the Graduate Adviser and completed before the next Fall quarter. The comprehensive examination committee must pass a student by unanimous vote. The examination may be repeated once. Failure to pass either the written and/or the oral exam in a second attempt will result in a recommendation to the Dean of Graduate Studies for disqualification of the student from the graduate program.

9) Normative Time to Degree

The Normative Time to Degree for the Immunology M.S. program is six quarters (two years).

10) Typical Time Line and Sequence of Events

The following is an example of a timeline for the **MS Plan I**. GGI does not admit masters students to the MS Plan II, but PhD students may complete the Plan II requirements to earn an MS degree either en route, or as a change in their degree objective. It will be ensured that an adequate number of courses are taken to fulfill the MS Plan I degree requirements.

Year 1					
Fall		Winter		Spring	
IMM201	4	IMM293	4	IMM295	3
IMM201L	4	IMM297	2	PMI291A	1
IMM296	2	RAL209	3	Non-GGI	4
PMI291A	1	299 Research	3	299 Research	4
PMI290	1				

Winter/Spring of Year 1: Form Thesis Committee

Year 2					
Fall		Winter		Spring	
PMI291A	1	MMI209	1	299 Research	12
299 Research	11	299 Research	11		

Winter of Year 2: Advance to M.S. Candidacy

Spring/Summer of Year 2: File Masters Thesis

11) Sources of funding

Most Masters students in the Immunology program enter the program supported by stipends and/or fellowships or other means of self-support. Masters Degree students in Plan I are eligible to receive stipend and fee support from their major professor from intra or extramural sources. Stipend support would be at the level of a graduate student researcher (GSR) at the level and effort specified in the GGI compensation plan. Masters students in the Plan II are expected to be self-supported. GGI block grant allocations are not usually provided to Masters Degree students, as they do not participate in the rotation program.

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. PROGRAM IN IMMUNOLOGY

1. Admissions Requirements for the Doctor of Philosophy

For admission to the PhD program in Immunology, the applicant must fulfill the following requirements:

- Hold a Bachelor's degree in a natural or physical science or engineering program
 - Meet the University of California minimum GPA requirement for admission, currently at 3.0.
 - Applicants who have not studied at an English speaking University must have done an English proficiency examination for international students (TOEFL or other University approved examination such as the IELTS) and must meet the Office of Graduate Studies minimum TOEFL score requirement (or equivalent for other University-approved examination).
 - Provide three letters of recommendation. Letters from faculty familiar with the applicant's research accomplishments are of particular value to the evaluation process. One of the letters should be from the sponsoring faculty member of GGI.
 - Provide a Statement of Purpose.
 - Provide a Statement of Personal History.
 - Students are also encouraged to submit a curriculum vita or resume with their application documents.
- a) **Prerequisites:** In addition, applicants are expected to have successfully completed upper division undergraduate courses in the biological sciences, e.g. immunology, microbiology, chemistry, biochemistry, cell biology and/or genetics. While there are no minimum course requirements, the record of the student should demonstrate aptitude and interest in the areas covered in courses such as (examples only): BIS 101 (Genes and Gene Expression), BIS 102 (Structure Function of Biomolecules), BIS 104 (Regulation of Cell Function), BIS 120 (Cell and Molecular Biology), CHEM 107A +B (Physical Chemistry for Life Sciences), CHEM 118A – C (Organic Chemistry for Health and Life Science), CHEM 128A-C (Organic Chemistry), MIC102 (General Bacteriology), MIC 140 (Bacterial Physiology), MIC 150 (Bacterial Genetics), PMI 126 (Immunology), PMII28 (Animal Virology). They are also expected to have gained some relevant research experience prior to entering the program.
- b) **Deficiencies.** Course work deficiencies should be made up by the end of the first academic year following initial enrollment by earning a letter grade of "B" or better.

2) Dissertation Plan

The candidate shall be subject to the provisions of the dissertation "Plan C" as described under Section 520 in the Davis Division Academic Senate Regulations on the Web at the URL: http://academicsenate.ucdavis.edu/cej/manual/dd_reqs.cfm#520-

Plan C specifies a three member (minimum) dissertation/final examination committee, a final oral examination, and no exit seminar.

3) Course Requirements

Core and Elective Requirements

The following core courses are to be taken by all PhD students for a total of 17 units.

Core Courses (17 units):

IMM201 Basic Immunology	(4 units)
IMM201L Work in Progress (Rotations)	(4 + 5 = 9 units)
IMM293 Current Concepts in Immunology	(4 units)

Students enrolled in the combined MD/PhD or DVM/PhD programs must take the same core courses. However, they may enroll in IMM201L (the rotation program) for only one quarter.

Selective Courses (6-10 units):

The following classes are “selectives” for the Immunology Graduate Group course offerings. Students must take a minimum of three classes, i.e. a minimum of 6 – 10 units, from the list below.

Required selectives (6-10 units): Three courses selected from:

IMM292 Innate Immunity*	(2 units)
IMM294 Comparative Clinical Immunology	(4 units)
IMM295 Cytokines	(3 units)
IMM297 Mucosal Immunology	(2 units)
RAL209 Current Topics in Immunology: From Presentations to Grants	(3 units)
NUT 251 Nutrition and Immunity	(2 units)

*Course under development. Planned first offering: Spring of 2010.

Students enrolled in the combined MD/PhD or DVM/PhD programs must take a minimum of 2 selectives, i.e. at least 4 units.

Petition for Course waiver To provide sufficient time for a student to take additional coursework in an area outside Immunology but closely related to the student’s PhD project, which could otherwise not be met through the taking of electives (see below), a GGI PhD student may petition the Executive Committee of GGI for release of a maximum of one selective, but not core classes, in lieu of other graduate level or upper division undergraduate level classes that carry similar unit numbers.

Seminars (2-3 units each year):

All PhD students must take one participation seminar and one non-participation seminar for each year of enrollment (i.e. 2-3 units/year) until advancement to candidacy. Below is a list of seminars offered by members of GGI. Other seminars offered on the UC Davis campus might be taken in lieu of, or in addition to those listed below.

Seminars One participation and one non-participation seminar per student per year until the student advances to candidacy. Listed courses are examples only.

IMM296 Advanced Topics in Immunology	(2 units, non-partic.)
MMI 209 Seminars in Microbiol. and Immunology	(1 unit, non-partic)
PMI 290 What’s up at the CCM	(1 unit, non-partic.)
PMI 291A Seminars in Immunology	(1 unit, participatory)
PMI 298 Immunology Breakfast Club	(1 unit, participatory)

Electives (8 units):

In addition to required immunology courses, PhD students are expected to enroll in Elective courses such as additional immunology selectives, statistics, scientific writing or other classes that provide the student with additional research tools and skill sets. Classes should be graduate level or upper division courses. The student is expected to enroll in a minimum of 8 units of electives. Classes in the outside area may be used to fulfill GGI requirements for elective courses for a maximum of 3 units.

The requirement for electives is waived for GGI PhD students enrolled in the combined DVM or MD/PhD program.

Outside Area Courses:

The PhD student will be examined in the Qualifying Examination on an “outside area” of study, chosen by the student. This area usually, but not necessarily, relates to the student’s research project (examples are: Virology, Bacteriology, Cancer biology, Neurology, Toxicology). In order to prepare the student for this examination, the student is expected to enroll in a minimum of 3 units upper division undergraduate or graduate level classes. These units may be used to fulfill part of the course requirements for electives (see above).

The requirements for electives, including course work for the outside area, are waived for GGI PhD students enrolled in the combined DVM/PhD or MD/PhD program. However, the students are strongly encouraged to take coursework related to their outside area of study.

Courses for the Designated Emphasis:

GGI PhD students enrolled in a Designated Emphasis (DE) must take all required classes for the relevant DE as outlined in the DE degree requirements as additional course load. The classes may not be used to fulfill any of the GGI course requirements, including electives.

Summary:

Full-time GGI students enrolled in the PhD program will carry a minimum course load of 12 units each academic quarter for a minimum of 48 units prior to advancement to candidacy. In so doing, the student will complete 2 core courses (8 units), 2 quarters of IMM201L (9 units), 3 selectives (6 – 10 units), 8 units of electives, one participatory and one non-participatory seminar (2-3 units/year) per year, as well as 299 research units. Students are expected to fulfill all course work requirements by the Spring quarter of their second year and conduct their Qualifying Examination during or Spring or the Summer of their second year (6th-7th quarter).

Students in the dual degree (DVM or MD/PhD) program are expected to identify their major professor prior to entering the graduate program through informal rotations during the two summers in which they are enrolled in the Medical or Veterinary School prior to entering the graduate program. Therefore, core course requirements are reduced to 4 units of IMM201L (the rotation program) plus IMM201 and IMM293 for a total of 12 units. Furthermore, they are required to take 2 selectives (4 – 7 units), as well as 299 research units for a total of 12 units each academic quarter for a minimum of 36 units prior to advancement to candidacy. The requirement for electives is waived. However, dual degree students are encouraged to take coursework relevant to the outside area of study. It is expected that they fulfill all course requirements and conduct their Qualifying Examination before Winter quarter of their second year.

Dual degree students who drop-out of the MD or DVM program after year 2 of their clinical degree program (i.e. after they already entered the graduate program) will continue to follow the study plan and course requirements for dual degree students, provided they successfully passed the course work for the clinical degree for years 1 and 2. Students who drop-out of the clinical program prior to successful completion of year 2, or who do not successfully complete the clinical program up to year 2, must reapply for admissions to GGI and would, if admitted, follow the study plan and course requirements of non-dual degree PhD students.

Appendix 2 and Appendix 3 provide outlines of Study Plan examples for the PhD and the dual degree DVM or MD/PhD graduate program, respectively.

4) **Special Requirements**

GGI PhD students who are in their second year and above (and dual degree PhD students first year and above) are expected to present yearly a poster and/or oral presentation during the GGI annual retreat outlining their major research accomplishments. PhD candidates are also expected to meet at least once a year with their dissertation committee to report on progress and to receive feedback from the committee; this annual meeting is to include all members of the committee. Exceptions to this rule require permission of the executive committee. The nine-quarter rule regarding employment (Directive #92-122 from the Office of Graduate Studies, July 21, 1992) applies to all GGI students.

Students who have not obtained a previous degree at an approved English-medium institution or demonstrated English-language proficiency through an appropriate exam (e.g. TOEFL) are required to complete appropriate English-language courses, as described in the policy Graduate Student Course Requirements – English as Second Language (GC2018-02). Courses taken in satisfaction of this requirement do not count towards the units required for graduation

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 is the Executive Committee of GGI. The Executive Committee invites two GGI students in good standing to participate in the interview process (see below) and to act as full voting members for the purpose of recommending to Graduate Studies the most competitive applicants for admission. Student representatives are chosen by the GGI student body. The Admissions Committee is chaired by the Graduate Group Chair and consists of the 2 students, 3 elected members of the GGI faculty as well as the student advisors (currently 4). All members of the Executive Committee have equal voting rights according to the bylaws of GGI. All members on the committee review all applications. Based on a review of each entire application, a decision is made to either reject the application, or to invite the applicant to attend the recruitment event. The recruitment event includes a formal interview by a panel of GGI faculty members. Each panel includes at least one member of the Admissions Committee. A separate interview with GGI students is to be held.

An alternate on-site interview date may be offered to interested students that have conflicts with the date of the recruitment weekend. Applicants attending the alternate event are interviewed by the Chair of GGI or his/her designate, at least one other member of the Admissions Committee, as well as other interested faculty. Enrolled GGI students will interview the candidate in an informal setting.

Under exceptional circumstances interviews will be conducted by phone. A panel of 3 faculty members will conduct the interviews, at least one of the faculty serves on the

Admissions Committee.

Following completion of all interviews the interviewing panels (students and faculty separate) rank the applicants and make their recommendations to the Admissions Committee. Based on the available information from the online application and the personal interview, the Admissions Committee makes a recommendation to the Dean of Graduate Studies to either accept or reject an applicant's request for admission; the Dean of Graduate Studies has power of final admissions decisions. A ranked waitlist may be established from which additional applicants are selected should spaces open up.

b) Graduate Adviser

Each entering PhD student is assigned one of the (currently 4) student advisers, who will act as his/her graduate advisers for the duration of their studies. Changes in Graduate Adviser can be made if it facilitates better access to the Adviser, such as co- location of student and Adviser on the Sacramento campus versus the Davis campus. The graduate adviser will meet with the student regularly, particularly until the student has chosen a major professor and until the Qualifying Examination. The adviser outlines and helps to implement the GGI study plan, including the course requirements and reminds the student of campus policies. Signature by the graduate adviser is also required on the yearly student progress report form and most other forms for graduate studies.

c) Qualifying Examination Committee

The oral Qualifying Examination is administered by a committee appointed by the Dean of Graduate Studies on the recommendation of the Executive Committee of GGI. In accordance with the guidelines and policies (Service on Advanced Degree Committees and Doctoral Qualifying Examinations) set forth by Graduate Council, the exam committee consists of five faculty members, of which four are from within the Graduate Group in Immunology and one is from outside of the graduate group. The graduate student will be asked by the administrator of the Graduate Group to provide the name of a faculty member that will act as Chair of the exam committee. The student will further be asked to provide the name of at least one faculty member that can test the student in the outside area of research. While the Chair is to be selected from the faculty members of the graduate group in Immunology, the faculty member examining the outside area will often be a faculty from outside of the group. The Executive Committee will identify three additional faculty members that will exam the student in general immunology and the sub-specialties in immunology. If a student is also enrolled in a DE, one of the five members will belong to that DE and will examine the student on a topic relevant to the DE. The major professor of a student must not be participating in the exam.

d) Dissertation Committee

The PhD student, in consultation with his/her major professor and graduate advisor, nominates three faculty to serve on the Dissertation Committee. The major professor serves as the Chair of the committee. Nominations are submitted to the Office of Graduate Studies for formal appointment in accordance with Graduate Council policy (DDB 80, Graduate Council B.1.). The student shall meet with the full dissertation committee on a regular basis, at least once a year. During that meeting the student should present the research work conducted for the PhD. The committee should judge the level of progress and guide the student in their future scholarly work. The committee shall also establish and outline to the student what if any additional work is necessary to complete the dissertation requirements. This committee shall guide the student through the studies and conduct a final oral examination.

e) **Final Examination Committee**

The three member Dissertation Committee will serve also as the Final Examination Committee. The committee shall conduct a final oral examination following an oral presentation of the dissertation by the student. Each member of the committee signs the dissertation after successful completion of the oral examination.

6) **Advising Structure and Mentoring**

The **Graduate Adviser**, who is appointed by the Chair of the program, is a resource for information on academic requirements, policies and procedures, and registration information. The adviser serves the student for the duration of their studies. S/he will meet regularly with the student, particularly during the first 2 quarters to discuss issues regarding selection of the major professor and course work requirements. The **Major Professor** is the faculty member who supervises the student's research and dissertation and is chosen by the student in discussion with the graduate adviser and following a rotation in his/her laboratory. The major professor serves as the Chair of the **Dissertation and Final Examination Committee**, which will be formed following successful completion of the Qualifying Examination. The committee shall meet as a full committee with the student at regular intervals, at least once a year. The **Mentoring Guidelines** are sent to each mentor at the beginning of the Spring quarter after the student has selected his/her mentor. They can also be found in the graduate student handbook, a hardcopy of which is provided to every incoming GGI student. In addition both the guidelines and the student handbook can be found and downloaded from the GGI website (immunology.compmed.ucdavis.edu).

7) **Advancement to Candidacy**

The student is eligible for Advancement to Candidacy after successful completion of all graduate program degree requirements and after passing the Qualifying Examination i.e. during or Spring or the Summer of their second year (6th-7th quarter) but no later than the end of the Winter of the third year (8th quarter). 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://graduatestudies.ucdavis.edu/gradcouncil/Doctoral%20Qualifying Examination](http://graduatestudies.ucdavis.edu/gradcouncil/Doctoral%20Qualifying%20Examination).

8) **Dissertation requirements:**

a) **Dissertation Plan**

The PhD program dissertation requirements are those outlined for the dissertation Plan C under 520 in the Davis Division Academic Senate Regulations on the Web at the URL: http://academicsenate.ucdavis.edu/cerj/manual/dd_regs.cfm#520- Dissertation Plan C specifies a three-member dissertation/final examination committee, a final oral examination, and no exit seminar.

b) **Examination requirements**

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 3.2 in all course work undertaken (except those courses graded S or U), and must have passed a Qualifying Examination before a committee appointed to administer that examination.

All students will complete the course requirements before taking their Qualifying Examination. This includes course requirements for a DE.

The Qualifying Examination will consist of an oral examination of about 3 hours in length.

A written research proposal should be provided to members of the Qualifying Examination committee at least 10 days before the exam.

The qualifying exam should be taken by the Summer quarter of year two and no later than the end of the Winter quarter of year three after admission to the Ph.D. program (by the 8th quarter).

According to university policy, graduate students cannot hold an academic title (e.g., Teaching Assistant, Research Assistant) for more than 9 quarters before passing their qualifying examination.

Passing the qualifying exam makes the student eligible for advancement to candidacy.

d) The written component of the Qualifying Examination.

The written component of the exam consists of a research proposal of 5 pages in length, describing the student's dissertation-specific research aims, hypotheses, progress to date, and experimental approach.

- Concepts within the research proposal are to be discussed with the student's major professor. The writing of the proposal should be the student's work, as the proposal will serve as evidence of the student's proficiency in scientific writing.
- The qualifying exam committee will be responsible for assessing that the student's writing proficiency is satisfactory before advancement to candidacy. Furthermore, the research proposal will provide information that may be discussed during the oral exam.

d) The oral component of the Qualifying Examination.

- The oral portion of the qualifying exam is intended to demonstrate the student's critical thinking ability, powers of imagination and synthesis, and broad knowledge of the field of immunology. The exam follows the guidelines and policies set forth by Graduate Council (<http://gradstudies.ucdavis.edu/gradcouncil/policies.html>). The Chair of the committee, in consultation with the other members will decide on the precise format, but ordinarily will adhere to the following format:
- The student is to orally present the dissertation proposal to the committee (15 – 20 minutes). Following this presentation, the student will discuss with the committee the underlying hypotheses and rationale of the studies, experimental approaches and pitfalls and alternatives as well as details on specific techniques used to do the work.
- Following discussion of the dissertation, the student is to be examined in general immunology, two subtopics in immunology, chosen by the student (examples are: innate immunity, adaptive immunity, mucosal immunology, autoimmunity, nutrition and immunity) as well as an outside area of research

that usually is, although does not have to be related to the topic of the dissertation (Virology, Microbiology, Neurology, Pathology). This component of the exam focuses on the broad knowledge in immunology and their chosen outside area field. Depth of knowledge, particularly in two subareas of immunology, are to be assessed.

- The student will be notified about the outcome of the qualifying examination (pass, not pass, fail) immediately following a brief discussion by the committee. The committee will evaluate the student's preparation in a special area of study based upon relevant portions of the student's previous academic record, performance on specific parts of the examination, and the student's potential for scholarly research as indicated during the examination and the student's general qualifications for a respected position and leader in the field of immunology as an educator or researcher.
- A student that passes the examination will advance to PhD candidacy following submission of the required signed documents with Graduate Studies.
- In the event of a “not pass” the student has the opportunity to make up for all identified deficiencies in a timeframe determined by the examination committee, but no later than the end of the quarters following the unsuccessful taking of the original exam. The Examination Committee will determine the extent of the reexamination (retake of all or certain components of the oral exam; rewriting of the written proposal or else). The outcome of the repeat exam will be either a “pass” or “fail”.
- In the event of a “fail” to pass the Qualifying Examination on the second attempt, a Graduate Studies-approved PhD qualifying examination committee can serve as the Masters Plan II Comprehensive Examination Committee (see Master’s requirements). The qualifying examination committee might fail the PhD student relative to PhD criteria, but may deem the performance sufficient to meet the requirements of a Master’s level exam. In that case the Examination Committee will ask the student to provide the written capstone requirement for a Masters Plan II within a certain timeframe, but no longer than 3 months after the oral examination. Following submission of that document, the committee will test the student only on the written component of the Masters Plan II in a separate exam, of about 1h lengths. The exam is to be held with at least 3 members of the committee present. The outcome of the exam will be a “pass” or a “fail”. Failure to pass the written component of the Masters Plan will lead to dismissal from the program. Alternatively, a student who fails the Qualifying Examination might petition the Executive Committee to support a change in degree objectives for a Masters Plan I (thesis). Failure of the student to apply to the Executive Committee for support for a change in degree objective to the Masters (Plan I or II) within 7 days following a failed Qualifying Examination will lead to a recommendation for disqualification from the program.

e) The dissertation

The PhD student will provide a written synopsis of the scholarly research activities conducted for the PhD degree in form of a written dissertation. The content of this dissertation will be presented during the final oral exam. The dissertation should comprise of an overall introduction to the topic and research problem at hand, at least two or more research chapters outlining the original research conducted for the PhD and a brief overall conclusion section that

describes how the completed work affects the stand of knowledge of the research problem investigated. The chapters describing the original research may be organized in form of a research publication. There is no absolute requirement that any or all parts of the dissertation are published prior to degree submission or award. However, it is expected that at least some part of the original scholarly work will result in publications so as to aid the dissemination of research information, allow for broader peer review of the work as well as to allow public recognition of the students work.

There are no specific requirements as to the lengths, style and format of the dissertation in addition to those outlined above. However, the dissertation must fulfill the requirements set forth by the dissertation committee and be done in a general acceptable, consistent and recognized manner.

f) The final examination

Prior to the final examination, the student shall provide to the Final Examination Committee an oral presentation of the dissertation. The oral presentation shall be open to the campus community, while the final examination itself shall be restricted to the members of the dissertation and final examination committee. Justified requests for attendance at the oral presentation shall be made in writing to the Chair of GGI no later than 2 weeks prior to the date of the examination.

9) Normative Time to the PhD Degree

Normative Time to Advancement to Candidacy is 6 quarters for PhD students and 3 quarters for dual degree DVM or MD/PhD students. Normative Time in Candidacy is 9 quarters for completion of the dissertation and passing of the oral final examination. Normative time for completion of the degree is 12-15 quarters.

10) Typical Time Line and Sequence of Events

PhD students will choose a Major Professor at the end of the winter quarter of their first year (end of the rotation period). Course requirements are generally completed no later than spring quarter of year 2 (year 1 of graduate work for dual degree PhD students) at which time the student will prepare for the Qualifying Examination. The Qualifying Examination should be completed during the summer of the second year (summer of the first year or Fall of the second year for dual degree students). This is usually followed by 9 – 12 quarters of research work during which time the student will conduct research in the laboratory of the major professor and is encouraged to participate in seminars and journal clubs offered by members of GGI and to present a poster each year at the GGI annual retreat. Completion of the work for the dissertation is determined in discussion with the Major Professor and the Dissertation Committee usually after 9 – 12 quarters in candidacy. After the Dissertation Committee has received the completed written dissertation and immediately following an oral presentation of the dissertation by the PhD student, which is open to the campus community, the Dissertation/Final Examination Committee will conduct a final oral examination of the student.

Example for PhD study plan

Year 1

Fall		Winter		Spring	
IMM201	4	IMM201L	5	IMM295	3
IMM201L	4	IMM293	4	IMM297	2
IMM296	2	MCB 161	3	PMI291A	1
PMI291A	1			299 Research	6
PMI290	1				

Year 2

Fall		Winter		Spring	
IMM294	4	RAL209	3	PMI290	1
PMI291A	1	NPB 103	3	IMM292	2
PMI 128	3	MMI209	1	299 Research	9
299 Research	4	299 Research	5		

Spring/Summer of Year 2: Qualifying Examination and Advance to Candidacy

Summer Year 2/ Fall Year 3: Form Dissertation Committee

Year 3 – completion

299 units (12/quarter)

Journal Club (encouraged)

Non-participatory seminars (encouraged)

Yearly poster presentation at annual retreat (encouraged)

Prior to completion (Summer of year 5):

Final Oral Examination

Filing of written Dissertation with Graduate Studies

11) Sources of funding

Each entering graduate student in the PhD program who conducts laboratory rotations during the Fall and Winter of their first year is given two quarters of financial support covering both stipend and fees and if applicable, non-resident tuition costs. Following the GGI supported rotation period, the identified Major Professor is expected to provide financial support for the PhD student, usually in form of a GSR appointment and must declare financial commitment and support before taking on a student. A mix of support may be used over the course of a PhD student's studies, including Financial Aid; Teaching Assistantships; Research Assistantships; Fellowship; Scholarships, and Grants. The Major Professor is expected to work with the student to ensure the student's continuous financial support.

Fees and Non-resident Tuition Costs are subject to yearly adjustments, as are stipends. The Graduate Group in Immunology follows the NIH guidelines for student stipends. The current (2008/2009) level of student stipend support expected to be paid by the Major Professor for students in GSR positions is \$23,716/year.

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/>

13) Leaving the program prior to completion of the PhD requirements.

See section 8.d. above (page 16). Should a student leave the program prior to completing the requirements for the PhD, they may still be eligible to receive the M.S. degree 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>

Appendix 1

M.S. Study Plan for students in the Graduate Group in Immunology

Year 1	Class code	Class Title	Units*	Other events
Fall	IMM201	Introductory Immunology	4	WOW Grad Studies
	IMM201L	Work in Progress	4	Introduction to GGI
	IMM296	Non-participatory Seminar 1 (Advanced Topics in Immunology or other)	2	Meet Graduate Adviser
	PMI 291A	Participatory Seminar 1 (Seminars in Immunology or other)	1	Welcome BBQ
	PMI290	Participatory Seminar 2 (Immunology Breakfast Club or other)	1	Develop research plan with mentor
Winter	IMM293	Current Concepts in Immunology	4	Annual Retreat
	Variable Variable	Selective 1 (RAL209 Current Topics in Immunology: From Presentations to Grants or other selective) Elective 1 ¶¶ 299 Laboratory research units Journal Club	Variable Variable	Meet Graduate Adviser
Spring	Variable	Selective 2	Variable	Meet the Chair
	Variable Variable	Selective 3 Elective 2 ¶¶ 299 Laboratory research units	Variable Variable Variable	Form Thesis Committee
Summer		Research		Meet with Thesis Committee
Year 2	299	¶¶ 299 Laboratory research units Seminar (non-participatory) Seminar (participatory) Electives Journal Club	Variable Variable Variable	Experimental Work Meet at least once with Thesis Committee Prepare poster for annual retreat Write and submit thesis

* Each quarter (FWS) enrollment has to be for a minimum of 12 units

¶¶ Please note that for each laboratory unit (299 research units), 3 hours of laboratory research time are expected/week. A minimum of 12 units is required for completion of the Master's degree. Course registration numbers (CRN) are unique for each faculty mentor

Appendix 2

Study Plan for PhD students in the Graduate Group in Immunology

Year 1	Class Code	Classes*	Units**	Other events
Fall	Imm201 IMM201L IMM296 PMI 291A PMI290	Introductory Immunology Work in Progress Non-participatory Seminar 1 (Advanced Topics in Immunology) Participatory Seminar 1 (Seminars in Immunology or other) Participatory Seminar 2 (Immunol. Breakfast Club or other)	4 4 2 1 1	WOW Grad Studies Introduction to GGI Meet your Adviser Welcome BBQ Identify rotations
Winter	IMM201L IMM293	Laboratory Rotation (2 + 3) Current Concepts in Immunology (or year 2) ***Elective 1 Journal Club	5 4 3	Annual Retreat Meet your Adviser Identify Major Professor
Spring	Variable Variable Variable	Selective 1 299 Research Units *** Elective 2 Journal Club	Variable Variable Variable	Start work with identified Mentor Meet the Chair
Summer		Research Seminars		Develop Study Plan Meet with Adviser – clear Study Plan/Identify outside area
Year 2				
Fall	Variable Variable Variable	Selective 2 (Clinical Immunology or other selective) Participatory seminar 1 (Seminars in Immunology or other seminar) 299 Research Units Elective 3 (Outside area) Journal Club	Variable Variable Variable Variable	Welcome BBQ
Winter	IMM293 Variable Variable	Current Concepts in Immunology (or year 1) Selective 3 (RAL209 or other selective) 299 Research Units Non-participatory seminar 1 Journal Club	4 Variable Variable Variable	Annual Retreat (prepare first poster) Meet with Adviser – identify potential QE committee members
Spring	Variable Variable PMI290	Elective 4 299 Research Units Participatory Seminar 2 Immunology Breakfast Club (QE prep) Journal Club	Variable Variable Variable	Meet the Chair Qualifying Examination – Advance to Candidacy
Summer		Qualifying Examination Research		QE – Advance to Candidacy Identify Dissertation Committee
Years 3 – 5				
	Variable	299 Research Units Journal Club Seminars	12/qtr	Experimental Work Meet at least once per year with Dissertation Cmt Prepare poster for annual retreat

*When a Designated Emphasis (for example Biotechnology, Vector Borne Diseases) is pursued, all required class work (for the DE) must be completed in addition to the required class work for Immunology before sitting the qualifying examination (QE). 1 – 2 classes can still be ongoing in the quarter in which the QE is held. In that case advance to candidacy will occur only after classes are taken successfully.

** Each quarter (FWS) enrollment has to be for a minimum of 12 units

*** Elective courses are to be chosen in discussion with mentor and student adviser. A minimum of 8 units is required Electives can be selectives in addition to the 3 required selectives and/or courses in outside area or other upper division undergraduate or graduate level courses

¶ Please note that for each laboratory unit (IMM201L or 299 research units), 3 hours of laboratory research time are required/week. Therefore, for 5 units of IMM201L will translate to 15 hours/week during the laboratory rotation, 4 units equals 12 hours/week.

**Appendix
3**

PhD Study Plan Example for Dual Degree (MD or DVM/PhD) students in the Graduate Group in Immunology

Year 1	Class code	Class Title*	Units**	Other events
Fall	IMM201	Introductory Immunology	4	WOW Grad Studies
	IMM201L	Work in Progress	4	Introduction to GGI
	IMM296	Non-participatory Seminar 1 (Advanced Topics in Immunology)	2	Meet your Adviser
	PMI 291A	Participatory Seminar 1 (Seminars in Immunology or other)	1	Welcome BBQ
	PMI290	Participatory Seminar 2 (Immunol. Breakfast Club or other)	1	Develop Study Plan / outside area
Winter	IMM293	Current Concepts in Immunology	4	Annual Retreat
	Variable	Selective 1 (Current Topics in Immunology: From Presentations to Grants or other selective) ***Outside area courses ¶ "299" Research Units	Variable Variable Variable	Meet with Adviser – identify potential QE committee members
Spring	Variable	Selective 2	Variable	Meet the Chair
	Variable	Selective 3 ¶ "299" Research Units Participatory seminar 3 (Immunology Breakfast Club (QE prep))	Variable Variable Variable 1	
Summer		Research Seminars		QE – Advance to Candidacy Identify Dissertation Committee
Years 2 - ...		299 Units Journal Club Seminars	12/qtr	Experimental Work Meet at least once per year with Dissertation Committee Prepare poster for annual retreat

*When a Designated Emphasis (for example Biotechnology, Vector Borne Diseases) is pursued, all required class work (for the DE) must be completed in addition to the required class work for Immunology before sitting the qualifying examination (QE). 1 – 2 classes can still be ongoing in the quarter in which the QE is held. In that case advance to candidacy will occur only after classes are taken successfully.

** Each quarter (FWS) enrollment has to be for a minimum of 12 units

*** Non-GGI elective courses are not a requirement for dual degree PhD students. However, an outside area of study must be defended in the QE and enrollment in additional classes is recommended.

¶ Please note that for each laboratory unit (IMM201L or 299 research units), 3 hours of laboratory research time are required/week. Therefore, for 4 units of IMM201L will translate to 12 hours/week during the laboratory rotation.