

CLINICAL RESEARCH GRADUATE GROUP (CRGG)
MAS DEGREE REQUIREMENTS
Revised: September 27, 2010; May 6, 2014; June 1, 2018
Graduate Council Approval: April 16, 2019

Master's Degree Requirements

1) Admissions

a) Eligibility requirements: Candidates must meet the following minimum requirements:

- Completion of a Ph.D. or a professional degree in the health sciences (e.g. M.D., D.D.S., D.M.D., O.D., N.D., D.O., Pharm.D., D.V.M., D.N.S., etc.) is required. Applications from students currently enrolled in professional or academic degree programs who demonstrate an interest in translational research (pre-clinical, clinical, or community-based) will be considered on an individual basis.
- Candidates should have a high level of interest and potential to pursue innovative translational research (ranging from pre-clinical to clinical to community-based), and a long-term goal of pursuing a translational research career.
- Medical students or students in other professional degree programs interested in the one-year option must take a temporary educational leave from their professional degree program for at least one year to pursue the Clinical Research degree program full-time.
- Candidates who have not obtained an undergraduate or graduate degree at an approved English-medium institution must provide TOEFL or IELTS exam scores.

b) Application process:

- Consideration for program admission requires completion of an Office of Graduate Studies online application by the stated admission deadline.
- Application fees must be paid in full by the admission deadline.
- Applications must include a 2-4 page research proposal, a description of career development goals, a curriculum vitae, and a description of the mentoring plan with identified mentor(s).
- In addition to the mentoring plan, letters of support from the prospective mentor(s) will be required of all applicants.
- For faculty applicants, a letter from the Department Chair (or Division Chief) must be included, and must confirm his/her commitment of release time sufficient to pursue this degree program.

2) M.A.S. Plan II (Plan I is not offered)

M.A.S. Plan II requires 36 units of graduate and upper division courses, as indicated below, of which at least 18 units must be graduate courses in the major field. Not more than 3 units of research (299 or equivalent) may be used to satisfy the degree-unit requirements, although students may take more than three units. Each candidate must complete a final capstone requirement (described in #8). No thesis is required.

3) Course Requirements: 30 units of core coursework, and 6 units of electives which may include 3 units of research (CLH 299) are required for a total of 36 units as follows:

a) Required Core Courses (30 units):

• Introduction to Translational Research	CLH 200	1 unit
• Introduction to Clinical Research	CLH 202	3 units
• Methods in Clinical Research	CLH 203	3 units
• The Ethics of Research*	CLH 204	3 units
• Epidemiology for Health Professionals	SPH 205AY	4 units
• Team Science	CLH 207	1 unit
• Critical Assessment of the Biomedical Lit.*	CLH 211	3 units
• Introduction to Medical Statistics**	CLH 244/ SPH 244	4 units
• Biostatistics for Biomedical Science**	CLH 245/ SPH 245	4 units
• Biostatistics for Clinical Research**	CLH 246/ SPH 246	4 units

*courses are 1 unit per quarter, taken for three quarters

**for students who are already trained in statistics, these courses may be substituted with approval from the Chair and Education Policy Committee

b) Elective Courses (6 units): Elective requirements can be met with any combination of upper division or graduate courses in the biological or health sciences totaling 6 units. Elective units are chosen in consultation with the student Guidance Committee, and with approval of the CRGG Graduate Advisor. Electives may include but are not limited to:

• Introduction to Grant Writing, I	CLH 208	2 units
• Introduction to Grant Writing, II	CLH 209	1 unit
• Comparative Effectiveness Research	CLH 210Y	4 units
• Research Integration	CLH 240	1 unit
• Mentored Clinical Research	CLH 299	1 unit

Summary: A summary of the course requirements is outlined below, and is designed such that students can satisfy up to 4 course units in a Summer Session, held from July through September. The first core course (Intro to Clinical Research) is held as a 1- 2 week intensive course just prior to the start of Fall Quarter. The table below represents a typical 2- year plan.

Course Requirements	Course #	Quarter	Units
Core Courses - Summer Quarter			4 Units
• Introduction to Translational Research	CLH 200	Summer	1
• Introduction to Clinical Research	CLH 202	Summer	3
Core Required Courses			26 Units
• Epidemiology for Health Professionals	SPH 205AY	Fall	4
• Introduction to Medical Statistics	CLH 244	Fall	4
• The Ethics of Research	CLH 204	F/W/Sp	3 (1/ qtr)

• Methods in Clinical Research	CLH 203	Winter	3
• Critical Assessment of the Biomedical Literature	CLH 211	F/W/Sp	3 (1/ qtr)
• Biostatistics for Biomedical Science	CLH 245	Winter	4
• Biostatistics for Clinical Research	CLH 246	Spring	4
• Team Science	CLH 207	Spring	1
Other Courses			6 Units
• ;Introduction to Grant Writing, I (Suggested ELECTIVE for preapproved students only)	CLH 208	Fall	2
• Introduction to Grant Writing, II (Suggested ELECTIVE for preapproved students only)	CLH 209	Winter	1
• Research Integration (Suggested ELECTIVE for preapproved students only)	CLH 240	Fall/Winter	2 (1/qtr)
• Mentored Research	CLH 299	F/W/Sp	3 (1/ qtr)
• Elective (free choice – optional per interest)	Any	Any	1-3
Total Unit Requirements			36

4) **Special requirements:** When students in the Clinical Research Graduate Group simultaneously hold faculty appointments, compliance with ASR 6000(B) will be maintained by adherence to the following:

a) Faculty members who are students will recuse themselves, until the degree is granted, from any decisions within their department that affect other members of the graduate group, and,

b) All members of the department who influence or control decisions of the graduate group will recuse themselves on such matters as they affect the student(s).

c) **English Language Requirement:** Students who have not obtained an undergraduate or graduate degree at an approved English-medium institution, or who have not demonstrated strong English language proficiency through the TOEFL or IELTS exam are required to take appropriate English language courses, as described in Graduate Student Course Requirements – English as Second Language (GC-2018-02). Courses taken in satisfaction of this requirement do not count towards the (total # units) units required for graduation.

5) Committees

- a) **Admissions Committee:** Once the completed application materials are submitted, the application will be forwarded to the Admissions Committee. The Admissions Committee consists of three CRGG faculty. 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 the listed deadline for the next Summer entering class.
- b) **Student Guidance Committee:** Each student will have a Guidance Committee comprised of faculty Research Mentor(s), and one CRGG Graduate Advisor who will guide the student as they progress through the program. A student will typically have more than one Research Mentor. The Research Mentors will supervise the student's research project and guide the student in the development of the study plan. The student's research study plan is submitted at the time of application to the CRGG Admissions Committee. The CRGG Graduate Advisor will monitor the student's research and degree program progress, and serve as a resource for policies and procedures. The student's Guidance Committee will also be responsible for selecting the appropriate product (grant proposal or manuscript) for the student's fulfillment of the written component of the capstone requirement (see Section 8).
- c) **Educational Policy and Curriculum Development Committee:** The Chair of this committee will be appointed by the Chair of the CRGG in consultation with the CRGG Executive Committee. The Educational Policy and Curriculum Development Committee will consist of the Chair and three additional members. As a subcommittee of the CRGG, it is charged with making recommendations regarding the educational policy and curriculum development of the program. The Educational Policy and Curriculum Development Committee will also have the responsibility of evaluating the final written and oral components of the capstone requirement for each student. If one of the committee members is also a research mentor for the student being evaluated, he/she will be recused from decisions regarding the fulfillment of the student's written and oral capstone requirements.

- 6) **Advising Structure and Mentoring:** The **Research Mentor** is the faculty member who supervises the student's research project and guides the student in the development of the study plan. As noted above, a student will typically have more than one **Research Mentor**. A CRGG **Graduate Advisor**, (CRGG Graduate Advisors are appointed by the Office of Graduate Studies), and the **Research Mentors** comprise the student's **Guidance Committee** (see section 5) which monitors the student's research and program progress, and is a resource for policies and procedures. The **Graduate Program Staff** assists students with CCRG requirements and general university policies. The **Mentoring Guidelines** can be found on the School of Medicine Faculty Development website at: <http://www.ucdmc.ucdavis.edu/facultydev/mentoring.html>

- 7) **Advancement to Candidacy:** Every student must file a Candidacy for the Master's Degree form after completing 50% of their course requirements, and at least one quarter before completing all degree requirements; this is typically the Winter quarter of the second year of the program for working professional students, or the Winter quarter of the first year of the program for full-time students. 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 student's CRGG Graduate Adviser must recommend these changes to Graduate Studies. Students must have their CRGG Graduate Adviser 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. 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) Capstone Requirement:

Completion of the oral and written capstone presentations is the last requirement of the M.A.S. Plan II. A student may complete the requirements once s/he has advanced to candidacy. However, it is important that the capstone requirement be completed at or near the end of the coursework for the Master's degree; this is typically the Winter or Spring Quarter of the second year of the program for part-time working professional students, or the Winter or Spring Quarter of the first year of the program for full-time students.

The final capstone requirement will consist of both a written and oral presentation of the student's mentored research project.

Written Component:

One of three types of written documents will be accepted to fulfill the capstone requirement. The choice of document will be that of the student's Guidance Committee, and will be based on the career stage and level of research progress achieved by the student. The student is expected to work with his/her Research Mentor(s) to review and revise the written component before submission to the Education Policy and Curriculum Development Committee (see section c). Neither the grant nor manuscript options must be submitted or approved by an external entity to fulfill the requirement. The written component can be satisfied by one of the following, at the discretion of the Guidance Committee:

1. Independent research grant proposal to a federal agency (e.g. National Institutes of Health (NIH), CDC, DOE, etc.) or equivalent private foundation (e.g. American Cancer Society, Doris Duke Charitable Foundation, etc.). The format of the proposal must follow that of the federal PHS 398 form (Specific Aims and Research Strategy sections only) or National Research Service Award (NRSA) application, or an equivalent format for a private foundation grant application. The grant must represent the work of the student's independent research, and not that of the Research Mentor(s)
2. First author manuscript (research, or review article in student's area of research) formatted for a peer-reviewed journal. The manuscript must represent the student's independent work, and be deemed suitable for publication by the student's Guidance Committee and the Education Policy and Curriculum Development Committee.
3. An individually mentor-guided Comparative Effectiveness Research review of an area of particular interest to the student. Students may complete their systematic research review through independent study or through a case-method course, when such a course is offered. This option is appropriate for one-year students and for students without access to clinical resources for research projects.

Oral Component:

The oral component of the capstone requirement will take the form of a presentation before the Educational Policy and Curriculum Development Committee of the CRGG during the annual program retreat, which is also attended by other CRGG students, research trainees, and faculty mentors (approximately 50-75 total attendees). The presentation should be 10-15 minutes, and include the following components: 1) significance of the research, 2) specific aims, 3) methods, 4) results-to-date, 5) conclusions, and 6) future directions. There will be a question and comment period, following the presentation.

Evaluation of the Capstone Requirements:

The Educational Policy and Curriculum Development Committee will evaluate the final written and oral capstone products, and make recommendations to the CRGG Executive Committee. The committee's unanimous vote is required to certify completion of the capstone requirement. Once the capstone requirement has been fulfilled, the Master's Report Form will be signed by the Program Graduate Adviser and then forwarded to the Office of Graduate Studies. 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 the program submits the form, with the exception of the summer period between the end of the Spring Quarter and the beginning of Fall Quarter. The program must file the report with Graduate Studies within one week of the end of the quarter in which the student's degree will be conferred.

- 9) **Normative Time to Degree:** The normative time from matriculation to degree is typically two years for working academic professionals, who are pursuing the degree part-time while performing clinical, teaching, and other work responsibilities. Students pursuing the M.A.S. degree full-time, who have no concurrent career or educational responsibilities, can meet requirements in one year (see example 1 and 2 year study plans in section 10). The one-year option requires full-time students to take 6 more units of coursework in one year than the part-time students, who have two years to complete the curricular requirements. The one-year option also requires a greater time commitment to research during the program year than that required of part-time professional students who are simultaneously balancing career responsibilities with graduate degree requirements. The viability of the one-year option is further facilitated by the requirement that mentor selections and research study plans are completed prior to application to the graduate group, allowing students to begin making research progress immediately upon entry into the program.

10) Typical Time Line and Sequence of Events:

Typical Two-Year Plan for Part-Time Working Professionals

Year One			
Summer (4 units)	Fall (9 units)	Winter (8 units)	Spring (6 units)
<p>Introduction to Translational Research (CLH 200)</p> <p>Introduction to Clinical Research (CLH 202)</p>	<p>Introduction to Medical Statistics (CLH 244/SPH 244)</p> <p>The Ethics of Research (CLH 204)</p> <p>Epidemiology for Health Professionals (SPH 205AY)</p>	<p>Biostatistics for Biomedical Science (CLH 245/ SPH 245)</p> <p>The Ethics of Research (CLH 204)</p> <p>Methods in Clinical Research (CLH 203)</p>	<p>Biostatistics for Clinical Research (CLH 246/ SPH 246)</p> <p>The Ethics of Research (CLH 204)</p> <p>Team Science (CLH 207)</p>
Year Two			
Summer (0 units)	Fall (4 units)	Winter (3 units)	Spring (2 units)
<p>No Courses</p>	<p>Critical Assessment of the Biomedical Literature (CLH 211)</p> <p>Intro to Grant Writing, I (CLH 208)</p> <p>Mentored Research (CLH299)</p>	<p>Critical Assessment of the Biomedical Literature (CLH 211)</p> <p>Intro to Grant Writing, II (CLH 209)</p> <p>Mentored Research (CLH299)</p> <p>Advancement to Candidacy</p>	<p>Critical Assessment of the Biomedical Literature (CLH 211)</p> <p>Mentored Research (CLH299)</p> <p>Capstone Oral and Written Requirements</p>

Typical One-Year Plan for Full Time Students

Year One			
Summer (4 units)	Fall (11+ units)	Winter (10+ units)	Spring (8+ units)
<p>Introduction to Translational Research (CLH 200)</p> <p>Introduction to Clinical Research (CLH 202)</p>	<p>Introduction to Medical Statistics (CLH 244/SPH 244)</p> <p>The Ethics of Research (CLH 204)</p> <p>Epidemiology for Health Professionals (SPH 205AY)Critical Assessment of the Biomedical Literature (CLH 211)</p> <p>Mentored Research (CLH299)</p> <p>Elective</p>	<p>Biostatistics for Biomedical Science (CLH 245/ SPH 245)</p> <p>The Ethics of Research (CLH 204)</p> <p>Methods in Clinical Research (CLH 203)Critical Assessment of the Biomedical Literature (CLH 211)</p> <p>Mentored Research (CLH299)</p> <p>Elective</p> <p>Advancement to Candidacy</p>	<p>Biostatistics for Clinical Research (CLH 246/ SPH 246)</p> <p>The Ethics of Research (CLH 204)</p> <p>Team Science (CLH 207)</p> <p>Critical Assessment of the Biomedical Literature (CLH 211)</p> <p>Mentored Research (CLH299)</p> <p>Elective</p> <p>Capstone Oral and Written Requirements</p>

11) **Sources of Funding:** Most of our students are supported by their clinical home departments through release time, training grants and other internal and/or extramural training support. Students may apply for federal financial aid (FAFSA) if qualified.

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/>