

CURRICULUM AND STUDENT GUIDE
Revised March 2018
Cellular and Molecular Pharmacology and Physiology (CMPP)

Graduate Program
University of Nevada, Reno

1. Program Description

The mission of the CMPP graduate program is to prepare students for careers in basic biological and biomedical research, industry, and teaching. The program emphasizes training in molecular and cell biology, physiology and pharmacology to enable the students to tackle complex problems and mechanisms taking place at the cellular, tissue, organ and systemic levels.

Student Learning Objectives

- To enhance your knowledge in molecular biology, genetics, biochemistry, cell biology, physiology and pharmacology
- To learn a broad array of techniques to tackle multidisciplinary research questions
- To familiarize the student with ethics in science
- To develop a critical mind
- To work independently with minimal supervision in a collaborative environment
- To develop manuscript and grant writing skills, as well as the ability to communicate orally

Contacts

Dean J. Burkin, Ph.D.

Professor of Pharmacology

Director, Cellular and Molecular Pharmacology and Physiology (CMPP) Program

Center for Molecular Medicine,

University of Nevada School of Medicine

Tel: 775-784-6288

Fax: 775-784-1620

Email: dburkin@medicine.nevada.edu

Note: This handbook lists graduate program academic policies and procedures. It includes information on graduate school policies, degree requirements, timeline for degree completion, committee selection guidelines and comprehensive exam/thesis requirements. Every effort has been made to make this handbook accurate as of the date of publication; however, this handbook does not constitute a contractual commitment. Graduate programs may not offer all of the courses as described, and policies are subject to yearly review and changes with program director and Graduate Council approval.

2. Degree requirements

The minimum requirements for a Ph.D. are set by the Graduate School at **72** graduate units including at least **32** units in course work. A maximum of **24** units of course work (with grades of "B" or better) from a master's

degree program may be allocated toward the doctoral degree. (A Credit Transfer Evaluation Request Form available online from the Graduate School must be approved by the student's advisory committee, the Graduate Program Director and, the Dean of the Graduate School.)

The minimum CMPP Graduate Program requires:

CMPP Core Curriculum	32 required course units (see below)
Dissertation	40 units
Total units required	72 units

The specific program of study will be determined by the student and his or her Advisory / Examination Committee (see below).

The following courses (32 units) are required by the CMPP Graduate Program unless waived by the student's Advisory / Examination Committee and the Executive Committee.

BCH 705 Molecular Genetics	3 units - offered every FALL
PCB 711 Systems Physiology	5 units - offered every SPRING
PHAR 710 Molecular Pharmacology	3 units - offered every FALL
PHAR 725 Ethics and Scientific Research	2 units - offered FALL odd years
CMPP 770 Research Rotation	6 units
CMPP 790 Seminar	6 units
CMPP 794 Journal Club/Colloquium	6 units
CMPP 795 Comprehensive Exam	1 units

In addition to these courses, a CMPP Ph.D. student can elect to take electives selected by the student and the Advisory/Examination Committee.

Recommended Electives for CMPP (highlighted), although any elective may be chosen:

CMPP 740 Neuroeffector Pharmacology	3 units - offered every 3 rd FALL
CSH 780 Biostatistics in Public Health	3 units - offered every FALL
CMB 710 Molecular Cell Biology	4 units - offered every SPRING
BCH 613 Molecular Biophysics	3 units - offered every SPRING
PHAR 750 Molecular Mechanisms of Excitability	3units - offered every 3 rd FALL
PHAR 730 Intro to Imaging & Optics	3 units - offered every 3 rd FALL
PHAR 770 Reproductive Pharmacology	3 units - offered every 2 nd FALL
CMPP 793 Independent Study	3 units

Other Electives:

BCH 704 Biochemistry	3 units
BCH 706 Functional Genomics	3 units
BCH 740 Enzymology	3 units

BME 730 Introduction to Imaging & Optics	3 units
MICR 700 Biotechnology Today & Tomorrow	3 units
MICR 780 Intro Cellular Immunology	3 units
MICR 784 Molecular Mech Virus	3 units

See Appendix A and B for a Course Yearly Breakdown and an Example Plan of Study

A full-time graduate student may not register for more than sixteen (12) graduate units in any semester, or more than six (6) graduate units in any six-week summer session. Graduate assistants may not register for more than twelve (12) graduate units per semester. More than 12 credits requires an overload memo from the director.

Students who register for nine (9) graduate units or more in a semester are considered full-time. **To be considered full-time for financial aid purposes, all graduate students, including those on assistantships, must be enrolled in at least nine (9) graduate units;**

A minimum of **72 graduate units** is required, **including at least 32 units in course work. At least 30 units of 700-level courses beyond the bachelor's degree, not including** dissertation units, are required for the doctoral degree.

3. Program Completion Requirements

Graduate School Academic Requirements:

All graduate students must maintain a cumulative graduate GPA of 3.0. If their GPA drops below 3.0 they are either placed on probation or dismissed. Undergraduate courses will not count towards graduate GPA.

Probation: students whose cumulative graduate GPA is .1 to .6 points below that needed for a 3.0 GPA are put on probation. Students are placed on academic probation for one semester. If they fail to raise their cumulative GPA to 3.0 by the end of one semester, they are dismissed from their graduate program. Thesis, dissertation, S/U graded credits, and transfer credits have **no** impact on a student's GPA.

Dismissal: students whose cumulative graduate GPA is .7 or more grade points below that needed for a 3.0 GPA are dismissed. Dismissed students are no longer in a graduate program but may take graduate-level courses as a Grad Special. Students wishing to complete their degree must obtain approval to take graduate-level courses, raise their graduate GPA to at least 3.0 and then re-apply to a graduate program. Any courses taken to raise their GPA will be included in the graduate special/ transfer credit limitation (9 credits for master's degrees).

Transfer credits

These are credits transferred from another institution. Credits completed at UNR in another program or as a graduate special do not need to be transferred. Transfer credit is requested on the Graduate Credit Transfer Evaluation Request form available on Graduate School website ([Graduate Credit Transfer Eval Request form](https://www.unr.edu/Documents/graduate-school/GraduateCreditTransferEvaluationRequest.pdf)¹) and must be signed by the student, major advisor, and graduate director. Transfer credits applied to a master's program must comply with the time limitation on master's work (6 years). Thus, if a student took a course five years prior to admission, they would have to complete the degree within one year for the course to apply to the degree. Credits from a completed master's degree will be exempt from the 8-year time limitation for those students earning a doctoral degree.

¹ <https://www.unr.edu/Documents/graduate-school/GraduateCreditTransferEvaluationRequest.pdf>

Timeline for degree completion

APPENDIX A: Course recommendations per year

Below are class guidelines for each year of the CMPP program. Depending upon when a student starts or the amount of starting transfer credit, some of the guidelines might change. (For example, Biotechnology Masters students will have most of the first year of classes completed and will have schedules closer to second years.) Remember that a student's committee has final say over all classes and can substitute or recommend classes as needed.

Year 1:

Take the core courses listed below as an incoming first year. Fill the rest of your 9 credits per semester (Fall and Spring) with the second column of classes. Do not worry if you do not take all of the second column of classes as you can complete these in a later year.

Core Courses:	Classes to Complete Schedule:
BCH 705: Molecular Genetics (3 credits)	PHAR 725: Ethics and Scientific Research (2 credits)
PCB 711: Systems Physiology (5 credits)	CMPP 790: Seminar (1 credit)
CMPP 770: Research Rotation (3 credits) [x2-3]	CMPP 794: Colloquium/Journal club (1 credit)
	Elective credit as necessary (ex. BCH 613, PHAR 750, PHAR 730, PHAR 770...)

Summers:

To maintain student status for tax purposes, US students need to take at least 1 credit of CMPP 799: Dissertation per summer. You can take more dissertation credits if you wish but remember you must pay for each credit. International students do not need to take summer credits to maintain student status.

Year 2/3:

Year 2 and 3 are harder to plan because several of the courses are offered every two years or three years. Depending upon your start year, the availability and order of classes will be different. Therefore, take the core courses whenever they are available in your second or third year. Again, use the second column of courses to fill the remainder of the available 9 credits per semester.

Core Courses:	Classes to Complete Schedule:
PHAR 725: Ethics and Scientific Research (2 credits)	CMPP 799: Dissertation (1-9 credits)
PHAR 710: Molecular Pharmacology (3 credits)	CMPP 790: Seminar (1 credit)
CMPP 795: Comprehensive Exam (1 credit)	CMPP 794: Colloquium/Journal club (1 credit)
	Elective credits as necessary (ex. PHAR 750, PHAR 730, PHAR 770...)

Year 4+:

Generally, most students will be done with the required courses at this point. The bulk of your credits in year 4+ will be dissertation credits. Make sure to complete all the remaining classes that were not completed in previous years. Check the Degree Requirements section as well to make sure that an adequate number of credits for repetitive classes (ex. Seminar and Colloquium) has also been met.

APPENDIX B: Sample course of study (note that some courses are not offered every year)

Year 1 (Fall)

BCH 705 Molecular Genetics	3 units
CMPP 770 Research Rotation	3 units
CMPP 790 Seminar	1 unit
CMPP 794 Colloquium/Journal club OR	1 unit
PHAR 725 Ethics and Scientific Research OR	2 units
Elective	2 units
	Total graduate units: 8

Year 1 (Spring)

PCB 711 Systems Physiology	5 units
CMPP 770 Research Rotation	3 units
CMPP 790 Seminar	1 unit
	Total graduate units: 9

Year 1 (Summer)

CMPP Dissertation	1 unit
CMPP 770 Research Rotation (if necessary)	3 units
	Total graduate units: 1 or 4

Year 2 (Fall)

PHAR 750 Molecular Pharmacology	3 units
PHAR 725 Ethics and Scientific Research	2 units
CMPP 790 Seminar	1 unit
CMPP 794 Colloquium/Journal Club	1 unit
CMPP 799 Dissertation	2 units
	Total graduate units: 9

Year 2 (Spring)

CMPP 790 Seminar	1 unit
CMPP 794 Colloquium/Journal Club	1 unit
CMPP 795 Comprehensive Exam	1 unit
CMPP 799 Dissertation	6 units
	Total graduate units: 9

Year 2 (Summer)

CMPP 799 Dissertation	1 unit
	Total graduate units: 1

Year 3 (Fall)

Elective	3 units
CMPP 794 Colloquium/Journal Club	1 unit
CMPP 790 Seminar	1 unit
CMPP 799 Dissertation	4 units
	Total graduate units: 9

Year 3 (Spring)

Elective	3 units
CMPP 790 Seminar	1 unit
CMPP 794 Colloquium/Research Rounds	1 unit
CMPP 799 Dissertation	4 units
	Total graduate units: 9

Year 3 (Summer)

CMPP 799 Dissertation	1 unit
	Total graduate units: 1

Year 4 (Fall)

CMPP 799 Dissertation	8 units
CMPP 794 Colloquium/Journal Club	1 unit
	Total graduate units: 9

Year 4+

CMPP 799 Dissertation	9 units
	Total graduate units: 9

Doctoral degrees: All course work must be completed within eight years preceding the awarding of the degree. Credits transferred into doctoral degree from a completed master's degree are exempt from this eight-year limit.

4. Committee selection guideline

First Year of Study - The Co-Directors of the Molecular Biosciences Program will advise students during their first year of graduate study. First year students will enroll in CMPP 770 (Research Rotation in the fall and spring of their first year). These rotations are intended to expose students to the range of research in the Molecular Biosciences Program and to aid in the selection of an advisor. Students should rotate in a least two different laboratories. In the first two weeks of the first semester, students will attend presentations by CMPP faculty

interested in recruiting students into their laboratory in order to become familiar with faculty research and available research opportunities.

Selection of the Advisory/Examining Committee – Upon completion of the second rotation, each student will select a Dissertation Advisor who will serve as chair of their Advisory/Evaluation Committee. The Dissertation Advisor must agree to take the student on and will be responsible for supporting the student's research and providing a stipend consistent with CMPP guidelines. Students who are unable to identify a willing mentor at the completion of the second rotation will be advised by the members of the Student Oversight Committee over the summer following the first year of study. If a mentor cannot be found, the Committee will provide the Program Director with a written summary of the student's performance in course and research work and may recommend that the student be dismissed from the Ph.D. program. Once a mentor is chosen student should complete the declaration of mentor form and submit to the Graduate school:

[Declaration of Advisor Form²](#)

The Advisory/Examining committee will consist of at least *five* members of the Graduate Faculty: the Committee Chair/Permanent Advisor, at least two members of the CMPP Graduate Program, at least one faculty member from a department in a field related to the student's major, and at least one graduate faculty member representing the university-at-large. (For doctoral students, the research advisor may be a different faculty member than the permanent chair.) Students may request the appointment of a qualified faculty member from another university or from a relevant discipline or profession. Formal approval of the student's advisory/examining committee is made by the Graduate Dean. The Advisory/Examination Committee will hold an initial meeting prior to or early in the fall semester of the second year of study. The committee will approve the Qualifying Exam, the program of study, and the dissertation. It will also conduct the formal oral part of the doctoral dissertation defense and serve in an advisory capacity to the student during his or her tenure in the CMPP program. The student and committee will meet annually to prepare a written progress report consisting of a list of the courses the student has taken, the courses proposed for the next year, and the tentative date for the Qualifying Exam. The committee should review the student's program of study which should be initially submitted to the Graduate School no later than the day of the qualification day:

[Program of Study Form³](#)

Doctoral Programs: Consist of a minimum of five graduate faculty members; the chair, at least two faculty members from the student's major department/program, at least one faculty member from a department in a field related to the student's major, and at least one Graduate School representative.

In case of **interdisciplinary graduate programs**, the Graduate School Representative cannot have a primary appointment in the same department (or other appropriate major unit) as the student's committee chair.

Formal approval of all student advisory committees is made by the Graduate Dean

² <https://www.unr.edu/Documents/graduate-school/Declaration-of-Advisor.pdf>

³ <https://www.unr.edu/Documents/graduate-school/program-of-study.pdf>

5. Comprehensive Exams

Students must pass a Comprehensive Exam consisting of a written research proposal and oral examination by the Advisory/Examination Committee in order to be a candidate for a Ph.D. degree. Students are required to enroll in CMPP 795 in the semester in which they plan to take the Comprehensive Exam. Students are allowed 2 semesters to complete the Comprehensive Exam – sign up for the class in one semester and finish in the 2nd semester, then a grade change form is submitted. Failure to complete the Qualifying Exam will result in an Incomplete in this course.

The grant proposal of the Comprehensive Exam must be in the standard NIH format for a multi-year R21 grant as described in PHS form 398 ([Public Health Service Grant Website⁴](http://publichealthservicegrantwebsite.gov))

It must include (suggested page limits):

- Abstract (1 page)
- Specific Aims (1 page)
- Research Strategy (6 pages)
 - Background
 - Significance
 - Innovation
 - Preliminary Studies (optional)
 - Approach
- Literature Cited
- Human Subjects or Vertebrate Animals (as appropriate) (3 pages)

It should not include personnel, budget or facilities pages. Standard English grammar and spelling and accurate citation to work by others are required.

The topic must be approved by the Advisory/Examining Committee before the student begins writing. It can be an extension of the student's current research problem if it represents a significant advance or novel approach to the problem. It cannot be the same as a research project described in any grant submitted by the advisor or collaborators. Resources that may be consulted include the library, PubMed, the Advisory / Examining Committee, other researchers and other students. The finished document must be the student's own work. The proposal should be sent out to the examining committee at least **two weeks prior** to the date of the comprehensive examination to allow time for the committee to evaluate the proposal.

The student's doctoral committee will formally examine the student orally on the grant. If the grant proposal is not considered acceptable, a revised grant proposal will be due two months from the date of the first examination. If the student fails the second examination he or she will be dropped from the program. This exercise is viewed as an important component of the student's training and education. To pass the exercise, students will need to be well-versed in the current literature in their field, and be able to formulate and defend their research plan and methodology. Students will also be expected to answer questions about the principles and factual basis of the research being proposed as well as any principles and facts of biomedical science that the committee feels the student should know to advance to candidacy. This exam will introduce the student to the style, complexities and nuances of the grant proposal process and will begin to develop those skills necessary for obtaining extramural research grants and for defending their ideas before other scientists.

In order for a student to pass the Qualifying Exam, the Advisory/ Evaluation Committee must reach a consensus that the student has written an acceptable proposal and performed satisfactorily in the oral examination. This consensus will be provided to the Program Director. If the Committee cannot reach such a consensus, they may

⁴ <https://grants.nih.gov/grants/funding/phs398/phs398.html>

offer the student the opportunity to revise the written proposal, to repeat the oral examination, or both within a period determined by the Committee. Alternatively the Committee will provide the Program Director with a written summary of the student's performance in Qualifying Exam, course and research work and a recommendation that the student be dismissed from the Ph.D. program. The Program Director and Advisory/Evaluation Committee will decide if the student's work merits awarding a Master's Degree or if the student should be dismissed from the CMPP Graduate Program. The final decision will be forwarded to the Graduate School. Per Graduate School policy, students cannot continue in the CMPP Ph.D. program without passing the Qualifying Exam.

6. Thesis requirements

Dissertation and Final Examination Requirements - Prior to choosing a date for the final oral examination, graduate students must submit a copy of their final dissertation for review by their examining committee. The dissertation does not have to be in its final form, but must contain sufficient information to allow their committee to make an informed decision about the state of completion of their studies. The purpose of the review is to discern whether a student has sufficiently completed their studies to schedule the public seminar and final examination.

The format of the dissertation must meet the requirements of the Graduate School. If a student has first author publications accepted in refereed journals, the student may solicit the committee to use these publications together with an appropriate introductory chapter in lieu of the standard dissertation format. The committee may determine that additional chapters are required along with the published papers. The thesis should be sent out to the examining committee at least **four weeks prior** to the date of the thesis defense.

Following acceptance of the dissertation by the Advisory/Examination Committee, all doctoral candidates in the CMPP program will schedule and present a public research seminar on their dissertation research. This seminar will constitute part of the final examination and must be presented while the candidate is still in residence. Following the public seminar, the Advisory/Examination Committee will conduct a final oral examination in closed session. This oral examination will be conducted in accordance with the examination requirements of the Graduate School. Doctoral candidates may register for one credit of Independent Study during the semester in which this seminar is presented.

[Thesis Filing Guidelines](#)⁵

[Thesis Final Review Approval Form](#)⁶

[Dissertation Filing Guidelines](#)⁷

[Doctoral Dissertation Final Review Approval Form](#)⁸

[Dissertation Title Form](#)⁹

⁵ <https://www.unr.edu/grad/forms-and-deadlines/thesis-filing-guidelines>

⁶ <https://www.unr.edu/Documents/graduate-school/thesis-final-review-approval-form.pdf>

⁷ <https://www.unr.edu/grad/forms-and-deadlines/dissertation-filing-guidelines>

⁸ <https://www.unr.edu/Documents/graduate-school/dissertation-final-review-approval-form.pdf>

⁹ <https://www.unr.edu/grad/forms-and-deadlines/dissertation-title-form>

7. Graduate Assistantships

All graduate students holding an assistantship (teaching GTA or GRA) are considered Nevada residents for tuition purposes. Non-resident tuition is only waived for the duration of the assistantship. To be eligible for an assistantship, students must be admitted to a degree-granting program and be in good academic standing. The student must have an overall GPA of at least 3.0 and must be continuously enrolled in at least 6 graduate level credits (600-700) throughout the duration of the assistantship.

State-funded assistantships (GTA/GRA) may be held for a maximum of: five (5) years for doctoral degree students.

For more information on graduate assistantships please refer to:

General information: [Graduate Assistantships Website¹⁰](#)

Graduate Assistantship handbook: [Graduate Assistantship Handbook¹¹](#)

7. Health insurance

All domestic degree seeking graduate students, who are enrolled in six or more credits (regardless of the course level) in a semester, will be automatically enrolled and billed for the University sponsored health insurance for each term they are eligible (fall & spring/summer). If a student has other comparable coverage and would like to waive out of the student health insurance, it is the student's responsibility to complete the [Student Health Insurance Waiver Form¹²](#) prior to the deadline. If approved, a health insurance waiver is good for the current academic year only. A new waiver must be submitted each academic year. All international graduate students are required to carry student health insurance, and the cost will be automatically added to your student account. Any international graduate students with insurance questions must contact the [Office of International Students and Scholars \(OISS\) Website¹³](#) directly.

[Graduate Health Insurance Website¹⁴](#)

8. Leave of Absence

Continuous Enrollment: To maintain "good standing" all graduate students are required to enroll in a minimum of three (3) graduate credits each fall and spring semester until they graduate. International students may be required to enroll in nine graduate credits each fall and spring semester depending on the requirements of their visa. All students holding assistantships (whether teaching or research assistantships) are required to enroll in a minimum of six (6) graduate credits each semester they hold the assistantship.

Leave of Absence: Students in good standing may request a leave of absence by completing a leave of absence form available on the Graduate School website ([Leave of Absence Form¹⁵](#)) during which time they are not required to maintain continuous registration. Usually, a leave of absence is approved for one or two semesters. The leave of absence request may be extended by the student filing an additional leave of absence form.

¹⁰ <https://www.unr.edu/grad/funding/graduate-assistantships>

¹¹ https://www.unr.edu/Documents/administration-finance/hr/hr-graduate/GA_handbook.pdf

¹² <https://studentinsurance.usi.com/UNR/unr-grad>

¹³ <https://www.unr.edu/oiss>

¹⁴ <https://www.unr.edu/grad/health-insurance>

¹⁵ https://www.unr.edu/Documents/graduate-school/leaveofabsencer_9.23.pdf

Students applying for a leave of absence should not have any “incomplete” grades which could be changed to “F” and have a detrimental impact on their cumulative GPA. Requests for leave of absences must be received by the Graduate School no later than the last day of enrollment for the semester the leave is to begin.

Reinstatement: When a student has been absent for one semester or more without an approved leave of absence, he or she may request reinstatement via the Reinstatement form (available on the Graduate School website [Reinstatement of Graduate Status Form¹⁶](#)). This form allows the program the option to recommend the student be re-admitted to their graduate program based on their previous admission OR require the student to re-apply for admission which would require students to submit a new application for admission and pay the application fee. The Notice of Reinstatement to Graduate Standing must be received by the Graduate School no later than the last day of enrollment for the semester the reinstatement is to begin.

9. Graduate Student Association

The [Graduate Student Association \(GSA\) Website¹⁷](#) represents all graduate students and promotes the welfare and interests of the graduate students at the University of Nevada, Reno. The GSA works closely with appropriate university administrative offices, including the Graduate School and Student Services and reports to the President of the University. The GSA government functions through the Council of Representatives, Executive Council and established committees.

10. Graduate School Website

The [Graduate School Website¹⁸](#) is a great resource for students. You may be able to access necessary forms on the [Graduate Forms and Deadlines Website¹⁹](#), in which you can access the Graduation Application form and other materials.

¹⁶ <https://www.unr.edu/Documents/graduate-school/Notice-of-Reinstatement-Graduate-Standing.pdf>

¹⁷ <https://www.unr.edu/gsa/>

¹⁸ <https://www.unr.edu/grad>

¹⁹ <https://www.unr.edu/grad/forms-and-deadlines>