



**Department of Chemistry & Biochemistry
California State University, Los Angeles**

GRADUATE HANDBOOK

Revised September, 2023

Chair's Greeting

On behalf of the University, the College of Natural and Social Sciences, and the Department of Chemistry and Biochemistry, we welcome you as you embark on a two-year commitment to *master* a specialized area of chemistry and biochemistry. This mastery will come from your acquisition of both *enhanced academic knowledge* through graduate coursework and *practical laboratory skills* through your immersion in a research project. You have joined a Department with a long-standing record of excellence in graduate education. We wish you the utmost success and stand ready to help you in any way possible.

Krishna Foster, Ph.D.
Chair

Michael Hayes, Ph.D.
Associate Chair

GENERAL INFORMATION

Your first major decision will be choosing an option (I. Physical and Analytical Chemistry, II. Inorganic and Organic Chemistry, III. Biochemistry, or IV. Chemical Education). Clearly, this option should reflect both your interests and your career goals.

Your degree requirements include three portions, core requirements, option requirements, and culminating experiences. The core requirements are pre-defined and will apply to all students. Your option will dictate your options requirements. The M.S. degree program encourages breadth of study through its elective courses, so your choice of option does not mean you cannot pursue your interests in other areas of chemistry. You will choose one of the two culminating experiences, thesis, or comprehensive examination.

Your next step will be choosing a research advisor. This is an important decision that should be made thoughtfully. Learn about the research areas of the faculty by consulting web pages and research publications. While research advisors are associated with some traditional subdisciplines of chemistry because of the courses they teach, each faculty member may have research projects in various disciplines. The most current research projects may not be published or on the web, so talking to faculty in person about their current research projects is important. *You will be required to interview at least three faculty members so you will be able to make an informed decision.* You will use the “Chemistry 5910 Registration Form” (see Appendix for an example) to record the signatures and turn it into the Graduate Advisor and the Department of Chemistry and Biochemistry Graduate Program Coordinator. Your learning/research, communication, and personality “style” may work better with some advisors than with others. You are also strongly encouraged to talk to students working in the research group.

Your next step will be to plan your coursework in consultation with the Graduate Advisor and your research advisor. This plan lists courses you will take based on your degree option, research project, and interests. Once the Graduate Advisor and your research advisor approve your Academic Program Plan, it is submitted to the Department of Chemistry and Biochemistry Graduate Program Coordinator. (see Appendix for an example). *You may not change your Program for the Master of Science Degree unless you receive prior approval from the Graduate Advisor and your Research Advisor.*

The next couple of pages illustrate key milestones and sample coursework for a 2-year timeline to complete the MS degree.

**Two-year timeline for completion of MS in Chemistry
(Thesis culminating experience)**

Semester	Summer	Fall	Spring
Year 1	<p>Choose an option</p> <p>Interview faculty. Choose a research advisor.</p> <p>Meet with Grad Advisor to select courses</p>	<p>Satisfy GVAR before 12 units</p> <p>Prepare prospectus</p>	<p>Present prospectus to thesis committee</p> <p>Prepare seminar talk</p> <p>Advance to Candidacy upon</p> <ol style="list-style-type: none"> 1. passing the WPE/GVAR 2. completion of prospectus 3. completion of 12 units in grad program
Year 2		<p>Present CHEM 5120 seminar</p>	<p>Complete and defend thesis</p>

**Two-year timeline for completion of MS in Chemistry
(Comprehensive exam culminating experience)**

Semester	Summer	Fall	Spring
Year 1	<p>Choose an option</p> <p>Interview faculty. Choose a research advisor.</p> <p>Meet with Grad Advisor to select courses</p>	<p>Satisfy GVAR before 12 units</p> <p>Prepare prospectus</p>	<p>Present prospectus to thesis committee</p> <p>Prepare seminar talk</p> <p>Advance to Candidacy upon</p> <ol style="list-style-type: none"> 1. passing the WPE/GVAR 2. completion of prospectus 3. completion of 12 units in grad program
Year 2		<p>Present CHEM 5120 seminar</p>	<p>Give research presentation Take oral comprehensive exam</p>

TWO-YEAR ROADMAPS – sample coursework for MS students

Option 1: Analytical and Physical

Effective Fall 2022

Fall	Units	Spring	Units	Annual Totals
CHEM 5000	3	CHEM 5110	2	Year One : <i>complete prospectus</i> 19 units
CHEM 5100	3	CHEM 5910	1	
CHEM 5910	1	Directed Elective 2	3	
Directed Elective 1	3	Directed Elective 3	3	
Total	10	Total	9	
CHEM 5120	1	CHEM 5970	2	Year Two: 11 or 12 units
CHEM 5970	3	CHEM 5960 + Outside Elective 2	3	
Outside Elective 1	3	or	or	
		CHEM 5990	2	
Total	7	Total	4 or 5	
TOTAL UNITS UPON COMPLETION				30 or 31

Option 2: Inorganic and Organic Chemistry

Effective Fall 2022

Fall	Units	Spring	Units	Annual Totals
CHEM 5000	3	CHEM 5110	2	Year One : <i>complete prospectus</i> 19 units
CHEM 5100	3	CHEM 5910	1	
CHEM 5910	1	Directed Elective 2	3	
Directed Elective 1	3	Directed Elective 3	3	
Total	10	Total	9	
CHEM 5120	1	CHEM 5970	2	Year Two: 11 or 12 units
CHEM 5970	3	CHEM 5960 + Outside Elective 2	3	
Outside Elective 1	3	or	or	
		CHEM 5990	2	
Total	7	Total	4 or 5	
TOTAL UNITS UPON COMPLETION				30 or 31

Option 3: Biochemistry

Effective Fall 2022

Fall	Units	Spring	Units	Annual Totals
CHEM 5000	3	CHEM 5110	2	Year One : <i>complete prospectus</i> 19 units
CHEM 5100	3	CHEM 5910	1	
CHEM 5910	1	Directed Elective 2	3	
Directed Elective 1	3	Directed Elective 3	3	
Total	10	Total	9	
CHEM 5120	1	CHEM 5970	2	Year Two: 11 or 12 units
CHEM 5970	3	CHEM 5960 + Outside Elective 2	3	
Outside Elective 1	3	or	or	
		CHEM 5990	2	
Total	7	Total	4 or 5	
TOTAL UNITS UPON COMPLETION				30 or 31

Option 4: Chemical Education

Effective Fall 2022

Fall	Units	Spring	Units	Annual Totals
CHEM 5000	3	CHEM 5110	2	Year One : <i>complete prospectus</i> 19 units
CHEM 5100	3	CHEM 5910	1	
CHEM 5910	1	Directed Elective 2	3	
Directed Elective 1	3	Directed Elective 3	3	
Total	10	Total	9	
CHEM 5120	1	CHEM 5970	2	Year Two: 11 or 12 units
CHEM 5970	3	CHEM 5960 + Outside Elective 2	3	
Outside Elective 1	3	or	or	
		CHEM 5990	2	
Total	7	Total	4 or 5	
TOTAL UNITS UPON COMPLETION				30 or 31

ACADEMIC POLICIES

University Catalog: Graduate students are governed by University policies and regulations as stated in the *University Catalog* in effect at the time they achieve classified standing (G1, G2 or G3 level), provided that they maintain continuous attendance for registration purposes. Please use the following link to access “Graduate and Post-Baccalaureate Studies: General Information” in the current University Catalog:

<https://ecatalog.calstatela.edu/content.php?catoid=71&navoid=8495>

On rare occasions, changes are made to our MS requirements. However, the MS requirements for your personalized graduate program are described in the online catalog available at the Cal State LA website. It may be useful for you to print out the Chemistry section of that the online catalog so that you will always have a record of the University, College, and Departmental MS requirements that apply to you.

Department Requirements for Master’s Degree

All candidates for master’s degrees in chemistry must select an option (physical and analytical chemistry, inorganic and organic chemistry, biochemistry, or chemical education) and declare a culminating experience (thesis or comprehensive examination). For the degree, they must fulfill the following minimum requirements.

Unit Requirement: Completion of 30-31 semester units in approved courses, of which at least half (15 units) must be graduate (5000-level) courses.

Requirements for Option I: Physical and Analytical Chemistry (30-31 units):

- (1) Core Requirements (16 units)
 - a. Core Courses (9 units)
 - CHEM 5000 Interdisciplinary Discoveries in Chemistry and Biochemistry (3)
 - CHEM 5100 Introduction to Research (3)

- CHEM 5110 Graduate Seminar: Chemistry I (2)
- CHEM 5120 Graduate Seminar: Chemistry II (1)
- b. Research Requirements (7 units)
 - CHEM 5910 Advanced Laboratory (1) (complete 2 units)
 - CHEM 5970 Graduate Research (1-3) (complete 5 units)
- (2) Option requirements (12-15 units)
 - a. Directed Elective within Option (8-10 units)
 - (Note: Comprehensive Exam (CHEM 5960) students select 8 or 9 units.*
 - Thesis (CHEM 5990) students select 9 or 10 units)*
 - CHEM 4450 Introduction to Atmospheric Chemistry (3)
 - CHEM 4460 Drug Delivery (3)
 - CHEM 4510 Advanced Analytical Chemistry: Optical Spectroscopy (2)
 - CHEM 4520 Advanced Analytical Chemistry: Analytical Separations and Mass Spectrometry (2)
 - CHEM 4530 Advanced Analytical Chemistry: Electrochemistry and Surface Techniques (2)
 - CHEM 5400 Quantum Chemistry (3)
 - CHEM 5410 Nuclear Magnetic Resonance Spectroscopy (3)
 - CHEM 5510 Thermodynamics and Kinetics of Materials (3)
 - b. Electives outside Option (3 or 6 units)
 - Select courses from the directed electives in Options II and III.*
 - Comprehensive Exam (CHEM 5960) students must complete 6 units.*
 - Thesis (CHEM 5990) students complete 3 units.*
- (3) Culminating Experience (0 or 2 units)
 - Select one course.
 - CHEM 5960 Comprehensive Examination (0)
 - CHEM 5990 Thesis (1-3) (complete 2 units)

Requirements for Option II: Inorganic and Organic Chemistry (30-31 units):

- (1) Core Requirements (16 units)
 - a. Core Courses (9 units)
 - CHEM 5000 Interdisciplinary Discoveries in Chemistry and Biochemistry (3)
 - CHEM 5100 Introduction to Research (3)
 - CHEM 5110 Graduate Seminar: Chemistry I (2)
 - CHEM 5120 Graduate Seminar: Chemistry II (1)
 - b. Research Requirements (7 units)
 - CHEM 5910 Advanced Laboratory (1) (complete 2 units)
 - CHEM 5970 Graduate Research (1-3) (complete 5 units)
- (2) Option requirements (12-15 units)
 - a. Directed Elective within Option (9 units)
 - CHEM 4200 Advanced Organic Chemistry I (3)
 - CHEM 4210 Polymer Chemistry (3)
 - CHEM 4840 Drug Discovery and Development (3)
 - CHEM 4850 Bioinorganic and Bioorganic Chemistry (3)
 - CHEM 5200 Synthetic Organic Chemistry: Analysis, Design, and Methodology

- (3)
 - CHEM 5210 Organic Structure Determination (3)
 - CHEM 5600 Advanced Inorganic Chemistry (3)
- b. Electives outside Option (3-4 or 5-6 units)
 - Select courses from the directed electives in Options I and III.*
 - Comprehensive Exam (CHEM 5960) students must complete 5-6 units.*
 - Thesis (CHEM 5990) students complete 3-4 units.*
- (3) Culminating Experience (0 or 2 units)
 - Select one course.
 - CHEM 5960 Comprehensive Examination (0)
 - CHEM 5990 Thesis(1-3) (complete 2 units)

Requirements for Option in Biochemistry (30-31 units):

- (1) Core Requirements (16 units)
 - a. Core Courses (9 units)
 - CHEM 5000 Interdisciplinary Discoveries in Chemistry and Biochemistry (3)
 - CHEM 5100 Introduction to Research (3)
 - CHEM 5110 Graduate Seminar: Chemistry I (2)
 - CHEM 5120 Graduate Seminar: Chemistry II (1)
 - b. Research Requirements (7 units)
 - CHEM 5910 Advanced Laboratory(1) (complete 2 units)
 - CHEM 5970 Graduate Research (1-3) (complete 5 units)
- (2) Option requirements (12-15 units)
 - a. Directed Elective within Option (9 units)
 - CHEM 4860 Bioinformatics (3)
 - CHEM 5320 Protein Structure (3)
 - CHEM 5330 Transcriptional Control of Gene Expression (3)
 - CHEM 5340 Signal Transduction (3)
 - CHEM 5350 RNA Structure and Function (3)
 - CHEM 5360 Posttranslational Modifications of Proteins (3)
 - b. Electives outside Option (3-4 or 5-6 units)
 - Select courses from the directed electives in Options I and II.*
 - Comprehensive Exam (CHEM 5960) students must complete 5-6 units.*
 - Thesis (CHEM 5990) students complete 3-4 units.*
- (3) Culminating Experience (0 or 2 units)
 - Select one course.
 - CHEM 5960 Comprehensive Examination (0)
 - CHEM 5990 Thesis(1-3) (complete 2 units)

Requirements for Option IV: Chemical Education (30-31 units):

- (1) Core Requirements (16 units)
 - a. Core Courses (9 units)
 - CHEM 5000 Interdisciplinary Discoveries in Chemistry and Biochemistry (3)

- CHEM 5100 Introduction to Research (3)
- CHEM 5110 Graduate Seminar: Chemistry I (2)
- CHEM 5120 Graduate Seminar: Chemistry II (1)
- b. Research Requirements (7 units)
 - CHEM 5910 Advanced Laboratory (1) (complete 2 units)
 - CHEM 5970 Graduate Research (1-3) (complete 5 units)
- (2) Option requirements (12-15 units)
 - a. Directed Elective from Options (9 units)
 - Select the directed elective courses from either Option I, II, or III.*
 - Comprehensive Exam (CHEM 5960) students select 8 or 9 units of directed elective courses within Option I, II, or III.*
 - Thesis (CHEM 5990) students select 9 or 10 units of directed elective courses within Option I, II, or III. Electives outside Option (3 or 6 units)*
 - b. Electives outside Department (3 or 6 units)
 - With approval from the principal graduate advisor, select 4000-5000 level courses offered by the Department of Psychology, Department of Sociology, or the Charter College of Education. Selected courses should focus on topics pertinent to education theory, curriculum design, and assessment, or education research methods.*
 - Comprehensive Exam (CHEM 5960) students must complete 6 units.*
 - Thesis (CHEM 5990) students complete 3 units.*
- (3) Culminating Experience (0 or 2 units)
 - Select one course.
 - CHEM 5960 Comprehensive Examination (0)
 - CHEM 5990 Thesis(1-3) (complete 2 units)

Prospectus: Within six months after choosing a research adviser, each student, in consultation with their research adviser, will establish a Thesis or Comprehensive Exam Committee of four faculty members (*see Graduate Thesis Policies and Procedures* in the Appendix). A hard copy of the prospectus must be provided to each committee member no later than one week before a scheduled oral defense (or later with the consent of the entire committee). The student will present the prospectus to the Thesis or Comprehensive Exam Committee at the oral defense. If the Committee approves, the “Application for Advancement to Candidacy” (GS-10) Form will be signed and approved by the Committee members. Guidelines for preparing the prospectus are also given in the Appendix.

The GS-10 (see appendix) form must be submitted, along with an abstract to the Graduate Coordinator in the Department of Chemistry and Biochemistry. The Graduate Coordinator will ensure that the form is submitted to the College of NSS. After approval of the Prospectus, the student may enroll in the Graduate Research course (CHEM 5970) and the Thesis course (CHEM 5990).

Grade Point Average (GPA) Requirement: Achievement of a minimum B (3.0) grade point average in all courses on the approved degree program. A grade of C is allowed on the program; however, any grade below C, including C-, requires that the course be repeated with both grades

computed in the grade point average. Following is a breakdown of the grading system:

Traditional Grading System:

A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
D+	1.3
D	1.0
D-	0.7
F	0.0

Any grade lower than a C is a failing grade and must be repeated.

Non-Traditional Grading System:

CR/NC: Credit/No Credit (Grade received for Comprehensive Exam CHEM 5960).

RP: Report in Progress (Grade received for CHEM 5970, 5980, 5990 until the student passes the thesis defense. After the student passes, RP is changed to CR for CHEM 5970 and 5990; the RP is changed to a letter grade for CHEM 5980).

Graduate Writing Assessment Requirement (GWAR)

Graduate students are considered to have met the GWAR requirement upon admission to the University if they:

- (1) earned a bachelor's degree or higher from an accredited college or university where English is the primary medium of instruction; OR
- (2) attained a score of 41 or better on the writing portion of the California Basic Educational Skills Test (CBEST) or a score of 4 on the analytic writing portion of the GRE or the GMAT.

Graduate students must satisfy this requirement before completing 12 semester units. Graduate students may take the writing proficiency exam once (UNIV 4000). Students who do not pass must pass the designated GWAR course (UNIV 4010). Students who do not satisfy the GWAR requirement within their first 12 units may be subject to a registration hold.

Students must satisfy this Graduate Writing Requirement in order to be Advanced to Candidacy.

Introductory Research Requirement (CHEM 5910): This is the first research course that you will take. Your research advisor will describe the requirements for CHEM 5910.

University 9000 (UNIV 9000):

The information below is all taken from the UNIV 9000 webpage:
(<http://www.calstatela.edu/page/university-9000-univ-9000>)

*Registration in UNIV 9000 is restricted to graduate students who have been advanced to candidacy and have completed all coursework (including all allowable research units) but need additional time to complete their thesis, project or dissertation. If a student wishes to take a semester off before resuming coursework, they must take a [Leave of Absence](#), not UNIV 9000. Although UNIV 9000 is a zero unit course, the \$350 fee is based on one unit of credit for payment purposes; no unit credit is added to the student's program or transcript. **This course is not eligible for financial aid.***

Please note that students who register for UNIV 9000 may be required to start paying back student loans because UNIV 9000 is a zero unit course.

Below is the registration Process for UNIV 9000.

1. Complete the Graduate Continuous Enrollment Form provided by the College of Professional and Global Education (PaGE).
2. Obtain the approval of a Graduate Advisor on the Graduate Continuous Enrollment Form. Before signing the form, a Graduate Advisor will check to make sure that the student has been Advanced to Candidacy and that all of the student's coursework has been completed. A plan and timeline for completing the thesis, project, or dissertation must be established with the graduate advisor and committee chair as a condition of approval for enrollment in UNIV 9000.
3. Bring the completed Graduate Continuous Enrollment Form to PaGE Enrollment Services (University Student Union, Room 105) to be registered. Payment is due at the time of enrollment.
 - o Registration must be completed by the University Add Deadline of the session in which the student wishes to maintain continuous enrollment. Upcoming dates can be found [online](#), or contact PaGE for enrollment deadlines.
 - o Enrollment during Winter or Summer Session is only required if the student wishes to graduate during that term.

Students who elect a comprehensive examination as their Culminating Experience are not permitted to enroll in UNIV 9000.

Culminating Experience Requirement: A thesis or a comprehensive examination is required of all students.

Requirements for Enrollment in Graduate Research and Thesis Units (CHEM 5970, 5990): The student has an approved master's degree program in the College Graduate Dean's Office, fulfilled the WPE/GWAR (UNIV 4000) requirement, has Advanced to Candidacy (G3) classification, has an approved Request for Thesis or Project Committee and Title (GS-12 form) with the abstract of the prospectus on file in the NSS Graduate Dean's Office. See the appendix for departmental policies and procedures for the master's thesis.

Requirements for Enrollment in Comprehensive Examination (CHEM 5960): the student has an approved master's degree program in the NSS Graduate Dean's Office, fulfilled the WPE/GWAR (UNIV 400) requirement, has an approved Request for Thesis or Project Committee and Title (GS-12 form) with the abstract of the prospectus on file in the NSS Graduate Dean's Office, has Advanced to Candidacy (G3) classification, has an overall GPA of 3.0 or higher on all coursework completed in master's degree program, and has no more than one course remaining to be completed on master's degree program. See the appendix for departmental policy and procedures for the comprehensive examination.

Classification Levels:

- G1:** Conditional Graduate Standing. A student who has been admitted to a master's degree program but does not have an official, approved Graduate Program for the degree on file in the Associate Dean's Office.
- G2:** Classified Graduate Standing. A degree-seeking master's student who has an official, approved Graduate Program for the degree but has not been Advanced to Candidacy.
- G3:** A degree-seeking master's student who has been Advanced to Candidacy (see below).
- G4:** A post-baccalaureate student who is eligible to enroll in non-restricted classes but has not been officially admitted to a degree program.

Advancement to Candidacy to Undertake Culminating Experience: Advancement to candidacy is granted by the college graduate dean upon completion of the requirements listed below and upon the department's recommendation. It is the University's prerequisite to enrolling for the graduate research (CHEM 5970) thesis (CHEM 5990) and comprehensive examination (CHEM 5960) units. Advancement to candidacy requires:

- Satisfaction of Graduate Writing Assessment Requirement (GWAR).
- Previously classified graduate standing (G2).
- An approved master's degree Graduate Program on file in the college graduate studies office.
- Completion of a minimum of 12 semester units of the master's degree Graduate Program with an overall B (3.0) grade point average or higher.
- Recommendation of the department.
- Approval of the college graduate dean.

Only students who are Advanced to Candidacy (G3) are eligible to enroll for graduate research (CHEM 5970), thesis (CHEM 5990) and comprehensive examination (CHEM 5960) units.

CHEM 5110 and CHEM 5220 – Graduate Seminar: There are two courses that culminate in the student making a department presentation on a topic outside of their research area. Students should register for CHEM 5110 (preparation for the talk) in their second semester and for CHEM 5120 (giving the talk) in their third semester. In both these courses, students attend the department seminar series. *Although students only register for the Graduate Seminar courses for two semesters, they are expected to attend all of the departmental seminars every semester whether they are registered or not registered for these courses.* Contact Dr. Michael Hayes (phone: 323-343-2144); e-mail: mhayes3@calstatela.edu) to schedule your seminar. Dr. Hayes needs to be notified a semester in advance of your scheduled presentation. See the appendix for the grading criteria for Graduate Seminar.

Completion of Program: Completion of a master's degree requires:

- (1) Completion of the final approved program with an overall B (3.0) grade point average or higher.
- (2) Filing of a thesis approved by the candidate's thesis committee and cleared by the University Library or passing a comprehensive examination within two attempts.

College/University Policies and Procedures

Residence Requirement: At least 21 semester units for the master's degree must be completed in residence at Cal State L.A.

Course Substitutions: It may be necessary to change an Academic Graduate Program based upon special circumstances. The substitution of a course on your Graduate Program is done with the approval of the Graduate Advisor and the associate dean. This transaction is done by the Graduate Advisor using the Advisor Request System (GS-5 GRAD Course Substitution) on GET.

A course may NOT be added to or deleted from a master's degree Graduate Program AFTER it has been taken. Any change in the Graduate Program must be approved in advance by the Graduate Advisor, department chair, and college graduate dean. When such a change has been approved, it becomes part of the Graduate Program.

Transfer Courses. Students may transfer up to nine units of previously completed coursework toward the master's degree, with Graduate Advisor approval. These may include continuing education courses, transfer courses, courses completed before the filing date for the program, or a combination thereof. Transfer courses must be equivalent to 4000- or 5000-level course work at Cal State L.A. and must be acceptable for graduate credit in an advanced degree program at the institution where they were taken. The student will need to provide the graduate advisor with a course description of the course(s) he/she wants to transfer to Cal State LA. The student should

also submit unofficial transcripts to the advisor. The courses must **not** have been used as part of their undergraduate degree requirements, and the cumulative undergraduate GPA must be 2.75 or greater. Once the advisor determines the courses are transferrable, the Graduate Advisor will use GET to incorporate these courses into the degree program.

Full-Time Unit Load for Graduate Students: For full-time enrollment certification by the University, graduate students must carry a unit load of 8 units of approved prerequisite, corequisite, or graduate program courses. Upon recommendation of a student's major department/division/school and approval by the appropriate college dean, a student enrolled in any of the following department/division/school courses may be certified as full-time with fewer than 8 units: 5960, 5970, 5990. The maximum unit load for students working towards a graduate degree is 16 units per semester. Authorization to enroll in more than 16 units requires a petition approved by the student's major department/division chair or school director and the appropriate college dean

Time Limitation (Seven-Year Rule): No subject, unit, or grade credit will be granted for any course completed more than seven years before the date of completion of the master's degree. In extraordinary circumstances, students may petition for, and the college may grant, permission to validate such an expired course by an examination given by, and with the concurrence of, the department/division/school that offers the course. An expired course taken at another institution may not be validated by examination. See the NSS Graduate Handbook for the procedures used to validate an expired course. Students are allowed to validate three courses (9 semester units or 12 quarter units).

Continuing Student Status and Leave of Absences:

Students maintain their continuing student status for registration purposes only by attending at least one of the two semesters immediately preceding the semester in which they plan to enroll (excluding the summer term). Students who were admitted and enrolled in one of the last two semesters preceding the semester in which they plan to enroll will also maintain their continuing student status for registration purposes. Absence for more than one of any two consecutive semesters without an approved leave of absence will cancel continuing registration eligibility. Please see the Leaves of Absence form for additional instructions and information.

Please note: there are additional criteria for students who are Advanced to Candidacy (see below).

Procedure for continuing student status:

Conditionally classified and classified students must be enrolled in one of the two semesters during an academic year. For example, if a student registers for Fall 2017 he/she can take off Spring 2018, and still be eligible to enroll for Fall 2018. However, if that student know that he/she cannot register for Fall 2018, he/she will need to complete a leave of absence form and give it to the Office for Graduate Studies before the deadline. Petitions must be filed at Administration 409 after action by the department/division/school chair or director (also the college graduate dean in the case of graduate students) no later than 5 weeks before the end of the semester before the proposed leave.

Advanced to Candidacy students MUST be enrolled every semester from the time they are advanced to candidacy until they complete their degree. Please note that students cannot register for UNIV 9000 until after they register for all of their 5990 and 5970 units. If the student decides not to enroll in a semester, that student needs to complete a leave of absence before the deadline. Request forms are available at:

<http://www.calstatela.edu/graduatestudies/forms-and-petitions>.

Maintaining Enrollment for Thesis: Students must be advanced to candidacy and must obtain the approval of the associate dean with the assistance of the Graduate Advisor before registering for graduate research and thesis units. When all units for CHEM 5970 and 5990 classes have been completed, a student must maintain continuous enrollment by registering for thesis or research units using the CHEM 9000 course number each semester until completion of the thesis/project. *Furthermore, students must be officially enrolled during the term they expect to graduate.*

Thesis Requirements: Students who choose to write a thesis as their master's degree culminating experience should consult the Graduate Studies [Graduate Thesis, Project, and Dissertation Guidelines](#). It provides information about the following: procedures, regulations, and responsibilities governing the master's thesis or project; general requirements for thesis preparation and acceptance; format requirements for the thesis; and special instructions for projects and project reports. In addition, students must obtain specific department/division requirements from their Graduate Advisor. See the appendix for departmental policies and procedures for the master's thesis.

Graduate students who complete graduate research units (5970) and thesis units (5990) required for master's degrees must be regularly enrolled during any semester in which they use University facilities or consult with faculty. *This means you must be enrolled during the term in which you hold your thesis defense, file your thesis with the University Library, and graduate.*

Students who have previously enrolled in all allowable research units (5970) and are not enrolled in any other credit-bearing courses or thesis units (5990) but who will use University facilities or consult with faculty must register for CHEM 9000.

Applying for Graduation: Information below is from [University Graduation Office](#).

The **Graduation Application** is used by the student to notify the university that they are ready to complete their degree program. All coursework for the degree program must be completed prior to the award date (end of graduation term). The student's record may not be altered following the awarding of the degree so it is critical that the **Graduation Application** be accurate at the time of filing. A **Graduation Application** is filed once for a degree program. The student pays a \$20 application and \$10 diploma fee (\$30 total) at the time of filing. Once the **Graduation Application** is filed it may be updated (e.g. change term, major, option, etc.) by using the **Request to Change Graduation Term** form and paying a \$25 late filing fee.

Procedure for applying to graduate:

You can find the graduation application and deadlines in the [University Graduation Office](#).

The graduate student needs to complete the graduation application and have the graduate advisor sign the form. The graduate advisor needs to log in to GET and review the student's CAAR to check the following:

- o Is the student listed in the correct option?
- o Is the student's catalog date correct?
- o Is the student advanced to candidacy?
- o Have all the course substitutions been entered on CAAR?
- o Has the student completed all or almost all of his/her coursework for their program?
- o Will the courses the student is planning to enroll in for his/her last semester at Cal State LA fulfill any missing requirements that are listed on CAAR?
- o Is the student's program GPA a 3.0 or above?
- o Are the program units that the student has completed listed correctly on GET? It is always good to hand count the units the student has completed for his/her program and compare those units with CAAR.

A copy of the graduation form must be submitted to the department office for the student's file. After the application form has been signed by the graduate advisor and a copy given to the department, the form needs to be taken to the [Cashier's Office](#) by the student.

Financing Your Education

Departmental Graduate Assistants, Teaching Assistants, and Research Assistants: The Department of Chemistry and Biochemistry has some funding opportunities available and we encourage you to explore the following options:

- [MORE Programs – \(323\) 343-2395](#)
- [CREST-CATSUS – catsus@calstatela.edu](mailto:catsus@calstatela.edu)
- [Cancer Collaborative Scholarship – \(323\) 343-2494](#)
- [Graduate Assistants/Teaching Assistants – \(323\) 343-2300](#)
- [Research Assistants](#) – Many faculty have research grants that allow them to pay graduate students for laboratory research.

International Graduate Student Tuition Waiver Program: A limited number of non-resident tuition fee waivers or tuition fee reductions may be granted to non-resident graduate students who are either domestic non-resident students or citizens of a foreign country.

Federal/ State Financial Aid Programs: Graduate students may apply for financial aid but they must realize that many of the grant programs (Pell Grant, Cal Grant, etc.) that might have been available as an undergraduate are no longer available to graduate students.

The financial aid application, called the FAFSA or CADA (California Dream Application for AB540 students), becomes available every October 1st for the next academic year. In the Spring,

shortly after the March 2nd priority deadline, you will receive a letter from the Center for Student Financial Aid indicating your eligibility. If you are selected for verification (which means additional documentation will be required to determine your award eligibility), you will receive an actual award approximately four to six weeks after your financial aid is complete. Graduate students who are funded as full-time students must complete a minimum of 8 units per semester. For more details on course requirements and financial aid eligibility, please visit: <http://www.calstatela.edu/financialaid>

1. **State University Grant:** This is "gift" money: funds that you do not have to repay.
2. **Federal Work-Study (FWS):** The FWS Program enables you to become employed in an on-campus student assistant position. Eligible students may work a maximum of 20 hours per week.
3. **Unsubsidized Federal Direct Loan:** The Federal Direct Loan is an educational loan provided by the federal government. Eligible graduate students may borrow up to \$20,500 per year, for a cumulative total of \$138,500 in GSL/Stafford/Federal Direct Loan funds. This total includes loan money borrowed as an undergraduate. The interest rate is variable. Repayment begins six months after graduation or six months after dropping to less than half-time status. You may have up to 10 years to repay the loan.

Unsubsidized Federal Direct Loan interest begins to accrue immediately after the loan is disbursed. For more information about the interest rates and loan details, please visit: <https://studentloans.gov/myDirectLoan/index.action>

APPENDICES

Graduate Advisement Academic Program Plan

GRADUATE ADVISEMENT ACADEMIC PROGRAM PLAN

Name _____ S.I.D.# _____
 Address: _____
 City _____ State _____ Zip _____
 Home Phone: _____ Alternate Phone: _____
 Email1: _____ Email2: _____
 Date of Entry to Program _____ Graduation Date: _____
 Objective: _____

Placement Exam Dates _____ Pass or prereq. courses to take: P-Chem _____
 _____ O-Chem _____
 _____ Biochem _____
 _____ Biology _____
 _____ Inorganic _____
 _____ Analytical _____

Writing Proficiency Exam (WPE) Date (s) Taken: _____ Date Requirement Completed: _____

Required Units: _____ Comments: _____
 Electives Units: _____
 Research and Thesis Units: _____ Chem 500 level units: _____
 Total Graduate Program Units: _____

Year	Fall	Units	Year	Winter	Units	Year	Spring	Units	Year	Summer	Units
	Total Units			Total Units			Total Units			Total Units	
Year	Fall	Units	Year	Winter	Units	Year	Spring	Units	Year	Summer	Units
	Total Units			Total Units			Total Units			Total Units	
Year	Fall	Units	Year	Winter	Units	Year	Spring	Units	Year	Summer	Units
	Total Units			Total Units			Total Units			Total Units	

Research Director Signature _____	Date: _____
Graduate Advisor Signature: _____	Date: _____

Chemistry 5910 Registration Form

CHEMISTRY 5910 REGISTRATION FORM

Date: _____

Student's Name: _____ SID: _____

Address: _____ City _____ Zip _____

Home Phone: _____ Work Phone: _____

Semester Admitted: _____

Undergraduate Degree: _____ Year _____ University _____

Major: _____

RESEARCH INTEREST: _____

CAREER GOAL: _____

CURRENT EMPLOYMENT: _____ hr/wk

FACULTY MEMBERS INTERVIEWED (you must meet with at least three faculty):

<u>Name</u>	<u>Initials after Interview</u>	<u>Date</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please return the completed form to the Graduate Advisor before you join a research group.

For Graduate Advisor use only.

RESULTS OF PLACEMENT EXAMS (NT = Not Taken; P = Pass; RT = ReTake):

Analytical _____	Organic _____
Biochemistry _____	Inorganic _____
Biology _____	Physical _____

RESEARCH DIRECTOR: _____ DATE: _____



Application for Advancement to Candidacy

GS-10

Part 1: To be completed by the STUDENT

Last Name(s), First and Middle Names (must match EXACTLY as on Cal State LA transcript) CIN #

CalStateLA.edu Student Email Address Phone Number

Graduate Degree, Program, and Option

Part 2: To be completed by the STUDENT and the FACULTY GRADUATE ADVISOR

Advancement to Candidacy Requirements:

- Completed Graduate Writing Assessment Requirement (GWAR): Met or **will** meet by end of current term
- Completed minimum of 12.0 semester units of your study plan: Met or **will** meet by end of current term
- Earned minimum 3.0 grade point average: Met or **will** meet by end of current term

Additional Departmental or Program Coursework Requirements for Advancement to Candidacy (if any; e.g., defend proposal, complete required courses, etc.):

1.
2.
3.

Culminating Experience:

- Comprehensive Examination (complete this section then complete Part 4)
- Project (complete this section, Part 3, and Part 4)
- Thesis or Dissertation (complete this section, Part 3, and Part 4)

By signing this form, we certify that the student has adhered to their study plan and completed all requirements for Advancement to Candidacy.

Student Name Signature Date

Faculty Graduate Advisor Name Signature Date

Part 3 (Thesis, Project, or Dissertation ONLY): To be completed by the STUDENT and the COMMITTEE CHAIR

Proposed Thesis, Project, or Dissertation Title

Committee Chair Name Signature Date

Names of Additional Committee Members (signatures not required) Style Manual, if known (APA, MLA, IEEE, ACS, etc.)

Part 4: DEPARTMENT CHAIR AND COLLEGE ASSOCIATE DEAN APPROVAL

Advancement to Candidacy: Approved Not approved

Department Chair Name Signature Date

Approved Not approved

College Associate Dean's Name (or designee) Signature Date

Send one copy each to GRC@calstatela.edu, records@calstateku.edu, faculty graduate advisor, and student Rev. 6/2022

CALIFORNIA STATE UNIVERSITY, LOS ANGELES

GS-13

**APPROVAL PAGE FOR GRADUATE THESIS,
PROJECT REPORT, OR DISSERTATION**

**SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS
AT CALIFORNIA STATE UNIVERSITY, LOS ANGELES
BY**

Candidate Last Name, First and Middle Names

CIN#

Department and Degree Program

TITLE:

Committee Chair

Signature

Member

Signature

Member

Signature

Member

Signature

Department Chair

Signature

Date

Grading Sheet for Graduate Seminar (CHEM 5120)

Date:
Subject: Seminar Grading
Coordinator

To: Chemistry and Biochemistry Faculty
From: Michael L. Hayes, Seminar

Please evaluate the talk of XXXXXXXX by placing checkmarks in the spaces below to rate the speaker in each of the following categories. The student will receive a copy of this form. Please make written comments as appropriate.

CATEGORIES	Exceeds expectations	Meets expectations	Needs improvement	Not satisfactory
TOPIC SELECTION AND TREATMENT¹				
Focus on research within the last 5 years				
Originality				
Talk emphasizes results and analysis over introduction				
Critical analysis of original data is emphasized				
KNOWLEDGE OF SUBJECT MATTER²				
Focus on primary literature (not review articles)				
Presentation shows knowledge of chemistry and biochemistry				
Experimental details are well understood				
Handling of questions				
ORGANIZATION AND PREPARATION				
Talk as a whole is well organized around a clear, central theme				
Slides/overheads are well designed to convey the information				
An appropriate number of slides/overheads are used				
Timeliness and Quality of Abstract				
Work is appropriately cited (orally and written) during the seminar				
DELIVERY³				
English is understandable				
Appropriate speed, volume, and tone of delivery				
Minimal use of jargon				
Figures and tables clearly explained				
Good eye contact with audience				
Effective and judicious use of pointer				
Appropriate use of time				

NOTES: ¹Presentation of topics used in prior courses, or from the student's host research lab, automatically receives an overall grade of C- or lower. ²The greatest weight for the overall grade shall be placed on knowledge of subject matter in a novel topic. An unsatisfactory performance in either of these areas automatically results in a grade of C- or lower. ³Seminar length should ideally be 45 minutes (excluding questions), plus 5-10 minutes for questions. Too long or short lowers grade, though **presentations less than 35 minutes (without questions) automatically receive an overall grade of C- or lower.**

Overall Grade _____

COMMENTS:

M.S. Degree Thesis Committee and Prospectus Guidelines Department of Chemistry and Biochemistry

Within the first semester, each student, in consultation with his or her research advisor, shall establish a Thesis Committee. The student will subsequently (usually during the second semester) present to their Thesis Committee a prospectus for their thesis research program. The Thesis Committee will meet with the student at least every six months thereafter. The Thesis Committee, in cooperation with the student's research advisor and the Department Graduate Advisor, will monitor the progress of the student until the completion of the degree program.

The approved prospectus and the College GS-10 Form listing the names of the members of the Thesis Committee must be submitted to the Department Office. The Department Chair will only approve the College GS-10 Form when an approved prospectus has been submitted.

Guidelines for Preparation of the Prospectus

All text is to be typed single-spaced in 12-point type (or larger).

Margins should be one inch on all sides.

All pages must be numbered at the bottom center of each page.

I. Title

- A. Conveys the specific nature of the proposed study.
- B. Formatted such that:
 - 1. Only the first word and proper nouns are capitalized, or
 - 2. All words except for articles, prepositions, and conjunctions are capitalized.

II. Abstract – *maximum 500 words.*

The abstract briefly conveys what the study is about in a form comprehensible to a general audience. Acronyms, abbreviations, and technical jargon specific to the field should be avoided. The abstract should include a hypothesis or objective of the study, an overview of methods, and a brief statement of expected results and their significance.

III. Objectives – *maximum one-half page.*

- A. Includes specific hypothesis (or hypotheses) to be tested, expressed as a statement.
- B. If work will not test a hypothesis, this section should clearly state the objective(s) to be met.

IV. Background – *maximum two pages.*

- A. Introduces topic to a reader outside of the field.
- B. Should include literature review and summary of information relevant to the proposed research.
 - 1. Literature review should *synthesize* information, not state a disconnected list of facts.
 - 2. Relevant unpublished data can be included.
 - 3. All published and unpublished work discussed must be properly referenced.
- C. Should restate Objectives section and explain how objectives relate to earlier work covered in the literature review.

V. Materials and Methods – *maximum one page.*

An overview of the experimental design, including a summary of any experiments to be conducted, is presented. This section should discuss the experimental system or conceptual approach of the study.

VI. Significance – *maximum one-half page.*

How will the proposed work contribute to the advancement of scientific knowledge?

VII. References – *maximum one page, with a minimum of 12 peer-reviewed papers from scientific journals.*

- A. All references mentioned in text should be listed here.
- B. All chemistry prospecti must follow the ACS Reference Format. A brief online guide on the proper format is at <http://pubs.acs.org/books/references.shtml>. Prospecti in biochemistry may follow either the ACS Format or the Journal of Biological Chemistry.
- C. References should be numerical order, according to order mentioned in text, and referenced in the text by number.

VIII. Figures and Tables – optional.

A small number of relevant Figures and/or Tables are acceptable. All Figures and Tables must include titles and concise, explanatory legends.

Evaluation of the Prospectus:

The prospectus will be evaluated at two different levels: (1) by the Research Advisor and (2) by the Thesis Committee. The Research Advisor will work with the student until the prospectus is in its final form, ensuring that the scientific reasoning is correct, the prospectus is organized, and the writing is clear. The members of the Thesis Committee will then carry out an in-depth evaluation that includes content, format, organization, style, clarity of writing, depth of student knowledge, and writing skills (grammar, spelling, etc.). The Thesis Committee will also evaluate whether the project proposed in the prospectus is reasonable for a Master's degree student. At the end of this two-part evaluation, it should be concluded whether or not the student being evaluated can successfully complete the proposed research project in approximately two years.

Following review by the Thesis Committee, the prospectus will be approved, conditionally approved, or not approved. If conditionally approved, or not approved, it will be returned to the student with suggestions for improvement, after which the student will resubmit it to the Thesis Committee within one month.

Graduate Thesis Policies and Procedures

Department of Chemistry and Biochemistry

Title V Requirements: A thesis or project that is submitted in partial fulfillment of the requirements for a graduate program at California State University, Los Angeles, must satisfy the following definitions excerpted from Section 40510, Title V, of the California Code of Regulations (prior to January 1, 1988, referred to as the California Administrative Code). This code defines a graduate thesis as follows:

“A thesis is the written product of the systematic study of a significant problem. It identifies the problem, states the major assumptions, explains the significance of the undertaking, sets forth the sources for and methods of gathering information, analyzes the data, and offers a conclusion or recommendation. The finished product evidences originality, critical and independent thinking, appropriate organization and format, and thorough documentation. Normally, an oral defense of the thesis will be required.”

Thesis Committee: The thesis is ultimately approved (or rejected) by a thesis committee. The MS Thesis Committee is composed of four tenured/tenure-track faculty members: Thesis Committee Chair (also known as the thesis research advisor or the student’s PI), two department faculty members, and one additional faculty member from any department whose expertise must be outside the area of specialization with approval of the Thesis Committee Chair. For the purposes of this policy the areas of specialization are analytical/physical, organic/inorganic, biochemistry, and chemical education, as defined in our graduate program.

Thesis Committee Chair: The Thesis Committee Chair has the leading role in guiding the student in a thesis or project, from its inception to acceptance by the university, and assumes a special mentoring role to help the student during the preparation of the thesis. The thesis committee chair should offer constructive criticism of the various drafts of the thesis.

Selection of Thesis Committee Members: The thesis Committee Members are selected by the student, subject to approval by the student’s principal research advisor. Those faculty members that agree to serve on a candidate's committee are responsible for reviewing all submissions by the candidate in a timely fashion and for offering appropriate constructive responses. They are further responsible for meeting with other committee members to perform duties and assessments as needed.

Student Responsibilities: The Student preparing the thesis is ultimately responsible for the successful completion of their theses, including submission of information and drafts in a timely fashion. Theses must evidence originality and independent thinking, appropriate form and organization, and a rationale. The student's responsibility includes not only completing the work of the thesis itself in a professionally competent manner, but also knowing and adhering to all university, college, and department requirements related to the master's thesis. It also entails adequate and regular contact, as appropriate, with individual faculty members and committees.

Plagiarism: It is common that several students in one research group work on one large project and/or that a graduate student continues on a research project originally started by another student. In all cases, any work *not* done by the author of the thesis must clearly be identified as someone else’s work and properly referenced. Likewise, quotations from a prior thesis must be properly referenced. Quotation of large sections from other works (i.e. several paragraphs) is not acceptable. Likewise, work performed as an undergraduate student (at CSULA or elsewhere) may not be presented as the student’s original thesis research. It may be mentioned in a background section, but must be properly referenced. Failure to do follow these rules constitutes plagiarism and will be dealt with accordingly.

Thesis and References Format: The Committee on Professional Training (CPT) of the American Chemical Society (ACS) has developed guidelines for preparations of research reports. Students may find the definitions of the various sections (Introduction, Results, Discussion, etc) helpful. While a thesis is typically longer than a research report, it contains the same sections, **namely Title, Abstract, Introduction, Experimental Details or Theoretical Analysis, Results, Discussion, Conclusions and Summary, and References.** These guidelines are available on the web at http://portal.acs.org:80/portal/fileFetch/C/CTP_005606/pdf/CTP_005606.pdf

All chemistry theses must follow the ACS Reference Format. A brief online guide on the proper format is at <http://pubs.acs.org/books/references.shtml>. Theses in biochemistry may follow either the ACS Format or the Journal of Biological Chemistry. Additional information on the formatting of a thesis at Cal State LA is given on the library homepage at <http://www.calstatela.edu/library/guides/thesbk.htm>, especially in Chapter 3. Failure to follow these regulations will lead to rejection of the thesis.

Thesis Evaluation Criteria: Master's theses are evaluated both in form and content. In accordance with the thesis definition given in Title V at the beginning of this document, a thesis that does not contain evidence of a significant amount of the student's independent original work shall be rejected. As mentioned above, a thesis must contain Title, Abstract, Introduction, Experimental Details and/or Theoretical Analysis, Results, Discussion, Conclusions and Summary, and References.

Thesis Defense: An oral defense of the thesis before the thesis committee is required by the Department of Chemistry and Biochemistry. The defense is open to the public and is publicized through distribution of a thesis abstract. A typed draft of the thesis must be provided to each committee member no later than one week before the scheduled oral defense (or later with the consent of the entire committee). The final draft of the thesis is prepared following the defense. Three copies of the approval page should be signed only after the final draft has been reviewed and approved by the committee members. Students who are submitting the final draft of the thesis must be formally registered as classified graduate students (G3) for the semester in which the thesis is submitted.

Upon successful completion of the oral and written components of the Thesis Defense, students must obtain signatures for the GS-13 form, and turn them into the Graduate Coordinator in the Department office.

Comprehensive Examination Policy and Procedures

Department of Chemistry and Biochemistry

Only students who have successfully completed the prospectus requirement shall be allowed to register for the comprehensive exam class (CHEM 5960).

The comprehensive exam consists of two parts: A presentation of the student's research in the graduate program at Cal State LA, and an oral examination that assesses the student's ability to address complex scientific problems related to their field of research, including reviewing and critiquing the scientific literature at a level of expertise beyond that acquired during undergraduate studies. The oral examination is based on three papers related to the student's area of research.

The date and time for the research presentation and the oral examination shall be selected by the student's committee and the student. The research presentation shall be the first part of the exam. The second part (the oral examination) must take place within three weeks following the initial research presentation. One week prior to the date of the oral examination, the student's committee will select three papers related to the student's research on which the examination will be based. These papers may include papers cited in the student's prospectus. The Committee Chair has the main responsibility for selecting these papers. The committee will approve five questions relating to the material in these papers. These questions may range from details about experimental methodology to the theory and background of the work to the broader impact of the research. The papers will be given to the student one week prior to the scheduled exam. Students shall be allowed to use copies of the papers and notes during the exam.

The student will be asked to provide answers to the five questions during the oral examination. The questions may lead to a broader scientific discussion about the issues at hand. Students will be evaluated primarily on the overall understanding of the science discussed in the papers. Knowledge of critical details sufficient for an explanation of the manuscripts at the level of a MS in Chemistry is expected. The evaluation of the student's answers is based on a grading rubric similar to what was developed for our graduate seminars. These categories are listed on the next page. An overall grade of B or better is required to pass the comprehensive exam.

Upon successful completion of the comprehensive exam requirements, students must obtain signatures for *The Report of Comprehensive Examination*, and turn it into the Graduate Coordinator in the Department office.

COMPREHENSIVE EXAM GRADING CATEGORIES	Exceeds expectations	Meets expectations	Needs improvement	Not satisfactory
Understanding of current literature related to the assigned				
Answers emphasize analysis over paraphrasing text				
Critical analysis of original data is emphasized				
Presentation shows knowledge of the molecular sciences pertinent to the assigned papers at a level that is appropriate for a Masters student				
Experimental details are well understood				
Jargon including abbreviations are correctly explained				

Overall grade:

Additional notes:

