



COLLEGE OF SCIENCE

DEPARTMENT OF CHEMISTRY & BIOCHEMISTRY

MS Program Handbook



College of Science

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Chemistry & Computer Science Building
Rm 2.0702
500 W. University Ave.
El Paso, TX 79968



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College of Science: Mission and Vision

Mission

- To recruit, inspire, and develop a new generation of scientists and mathematicians, dedicated to the highest principles of Science, and educated in the environmental, health and economic challenges of the border region.
- To lead by example, promoting effective and self-sustaining research programs, encouraging student participation, and providing a national forum for addressing the special problems of our region.
- To work to educate all university students and the community at large, increasing the level of awareness of scientific issues, and providing a knowledge resource to citizens and government alike.

Vision

The College of Science (COS) envisions itself as a dynamic community of science and mathematics faculty and students engaged in innovative research and learning with global impact, recognizing our special role as a leader in this binational community.



Department of Chemistry: Mission and Vision

Mission

The Department of Chemistry and Biochemistry aims to inspire knowledge and support creativity in students, faculty, and staff.

We aim to provide rigorous preparation of future local, national, and international leaders in the physical and biochemical processes that surround us. We are dedicated to transformative science through high standards in research, world-leading faculty, and an exceptional student body.

Vision

The Department of Chemistry and Biochemistry aspires to prepare students to be competitive in an evolving world and to confidently pursue the difficult problems that will lead to impactful solutions to today's and tomorrow's challenges.

Facilities

College of Science X-Ray Core Facility

- Located in the Chemistry and Computer Science Building Rm G.0701
- Houses 3 X-ray diffractometers
 - Bruker D8 Venture
- Single crystal X-ray diffraction
- Small molecule and macromolecular crystallography
 - Bruker D8 QUEST
- Single crystal X-ray diffraction
- Small molecule crystallography
 - p-XRD Empyrean 2
- Powder X-ray diffraction
- Variable atmosphere, pressure, and temperature analysis
- Contact Information
 - Dr. Alejandro Metta
 - ajmetta@utep.edu
 - (915) 747-8788

NMR Facility

- 3 NMR Spectrometers, two housed in the X-Ray Core Facility (CCSB Rm G.0701) and one housed in the Physical Science Building Room 103
- NMR Spectrometers
 - JEOL ECA600
 - Location: CCSB Room G.0701
 - Magnet: 600 MHz high-field shielded magnet on ultra-stabilized TMC air legs
 - Observation: ¹H, ¹⁹F and from ¹³P to ¹⁵N
 - Probe: 5mm 60TH5/AT/FG2 broadband 600 MHz Z-gradient high resolution with automated tuning and matching
 - Sampler: Easy-access 24-slot auto sampler
 - Variable Temperature: Experiments from -100°C to +150°C
 - Bruker Avance III
 - Location: CCSB G.0701
 - Magnet: 400 MHz/52mm Z29727 Ultrashielded™, long hold time magnet
 - Observation: ¹H and from ¹⁹F to ¹⁵N
 - Probe: 5mm PA BBO broadband 400 MHz Z-gradient high resolution with automated tuning and matching
 - Sampler diameter: 5mm
 - Bruker DPX 300
 - Location: PSCI Room 103
 - 300 MHz NMR Spectrometer
 - Observation: ¹H and X channels (must be tuned manually by users)
 - Probe: Broadband; no gradient capabilities
- Contact Information
 - Dr. Sohan De Silva
 - srdesilva@utep.edu
 - [Website](#)
 - (915) 747-5893 (CCSB G.0701)
 - (915-747-7569 (PSCI 103)



EPR/Mass Spectrometry Facility

- Located in the Chemistry and Computer Science Building Rm G. 0702
- Houses 1 EPR Spectrometer and 1 Mass Spectrometer
- EPR Spectrometer
 - Bruker EMXplus
 - 10" X-B and Magnet
 - X-band solid-state ultra low noise microwave bridge
 - High sensitivity probe head with optical window
 - 100 G – 18 kG operating range
 - Cryoree VT system down to 10K
 - Advanced, Bruker Xenon software platform
- Mass Spectrometer
 - JEOL JMS-T100LC
 - High resolving power >6000 (FWHM)
 - Mass measurement accuracies <5 ppm
 - One-point drift correction
 - Electrospray ESI Source
- Contact Information
 - Dr. Sohan De Silva
 - srdesilva@utep.edu
 - [Website](#)
 - (915) 747-5893 (CCSB G.0701)
 - (915-747-7569 (PSCI 103)

Cryo-Electron Microscopy Facility

- Located in the Chemistry and Computer Science Building Rm G.0920
- Cryo-Electron Microscope
 - JEOL JEM-3200FS
 - Field emission electron gun of 300 kV accelerating voltage and an in-column energy filter
 - In-column energy filter (Omega filter)
 - New control systems - systemizing basic functions such as the electron gun, electron optical system, goniometer, and evacuation system
 - New Systemized goniometer with piezoelectric driving elements - improvement in specimen shift at high magnifications
- Contact Information
 - Dr. Marco Ramirez
 - maramirezramos@utep.edu
 - [Website](#)
 - (915) 747-7552

Tuition and Fees

Tuition and fees are set by the University and approved by The University of Texas System Board of Regents. The tuition and fees schedule is subject to change. For the latest Tuition and Fees Schedule, rates, and how to pay, please visit the Student Business Services website:

[UTEP Student Business Services](#)

Teaching Assistantships (TA)

TA assignments are contingent upon the schedule of courses offered each term, required number of students enrolled in your tentatively scheduled course(s) each semester. Typically, you will be assigned as a TA in the department's core courses, such as General Chemistry (CHEM 1305/1306) and you can expect to receive your first paycheck the first business day in October (first business day in February if starting in Spring semester). Graduate students in good standing are eligible for TA support within five years of entering the graduate program.

Teaching Assistants are typically assigned instructional duties for assigned laboratory sections each week. Duties include but are not limited to:

- Leading and supervising their assigned laboratory section
- Keeping in contact with instructors and laboratory coordinators
- Proctoring exams
- Grading of exams

If there are violations of any of these duties and responsibilities, TA eligibility could be lost for the semester or indefinitely.

Research Assistantships (RA)

Research Assistantships involve participating in a research project as directed by your research advisor. RA salaries are generally around the same as TA salaries. Research Assistantships are dependent upon available funding.



Program Requirements

****IMPORTANT:** Failure to adhere to the program requirements will result in becoming TA ineligible.

Milestone Roadmap

Year 1

- Meet with Graduate Advising Team to determine required coursework and registration
- Join a research group (must be done by the end of first semester)
- Discuss research project(s) and progress with research advisor
- Complete your initial Individualized Development Plan (IDP)
 - IDPs need to be completed on a yearly basis
- Form Thesis Committee

Year 2

- Annual Committee Meeting
 - At least one committee meeting is required before graduation
- Discuss progress with your research advisor (Individualized Development Plan - IDP)
- Meet with Graduate Advising Team to determine required coursework and registration
- Apply for Graduation (in your graduation semester)
- Thesis Defense
- Defense accepted by Graduate School
- Submit required defense/graduation forms to Graduate School

Milestone Guidelines

Join a Research Group

- Must be done by the end of your first semester
- Complete the [Selection of Research Advisor Form](#)
 - Must meet with three (3) research-active faculty members and their respective graduate students to talk about their research programs and obtain signatures from each
 - Once you select a research advisor, obtain their signature under the 'Research Advisor Selected' section and sign the form as well
 - Submit the completed form to the Graduate Student Coordinator (preferably via email)
 - The Graduate Student Coordinator will submit the form to the Department Chair for their approval and signature

Thesis Committee

- One (1) faculty member must be from outside the department
- If they are from outside the university, you must submit the [Temporary Membership in Graduate Faculty form](#)
 - Submit the signed form along with their CV to the Graduate Student Coordinator to obtain signatures from the Department Chair, Dean, and Graduate School

Annual Committee Meeting

- Annual meeting scheduled with all members of Dissertation Committee
 - Contact ChemGradAdvisor (ChemGradAdvisor@utep.edu) to reserve a room and/or create a Zoom link
 - Student presents a closed-door PowerPoint presentation on the work they have conducted (since their last meeting if more than one) and plans/goals for the next year
 - It is up to the Committee Chair (Research Mentor) if a written report is required
 - The committee will assess the student's performance
 - Will be asked to leave during the discussion of the performance evaluation
 - The committee provides verbal feedback and the committee chair will write a formal assessment and evaluation addressed to the student, the members of the committee, and ChemGradAdvisor (ChemGradAdvisor@utep.edu)

Thesis Defense

- Open to general public, faculty, and students
- Must provide dissertation to the committee and notify the Graduate Student Coordinator at least two (2) weeks prior to thesis defense
 - Email the Graduate Student Coordinator (ChemGradAdvisor@utep.edu) with the following information: date, time, title of dissertation, abstract, and whether a room reservation and/or Zoom link is needed
- Defense must be scheduled no later than two weeks before Dead Day of the intended term of graduation
- Thesis accepted by Graduate School
 - Format/templates/timeline located here: <https://www.utep.edu/graduate/current-students/how-to-graduate.html>
 - Run plagiarism check in Blackboard (course titled "UTEP Graduate School SafeAssign Submission")
 - Submit the [Thesis Defense Form](#) to Graduate School
 - Form must be submitted at least two weeks before Dead Day of the graduation semester
- Submit the final copy of thesis to Graduate School and ProQuest
 - ProQuest: <https://www.etdadmin.com/main/home?siteId=95>

Graduation

- Review the timeline for your final semester here: <https://www.utep.edu/graduate/current-students/completion.html>
- Submit the [Application for Graduate Degree](#) and notify the Graduate Student Coordinator
- After applying for graduation, you will receive an email from the Registration and Records Office with instructions on registering for Commencement
- Submit the [Graduating Student Check-Out Form](#) to the Graduate Student Coordinator

Course Descriptions (2026 – 2027 Graduate Catalog)

CHEM 5195 – *Graduate Seminar*

Graduate Seminar. This course is required of all graduate students every semester.
1 credit hour (2 total contact hours, 2 lecture hours)

CHEM 5196 – *Graduate Research in Chemistry*

1 credit hour (3 total contact hours, 3 other hours)

CHEM 5318 – *Advanced Analytical Chemistry*

Advanced Analytical Chemistry. Chemical equilibrium and its applications to separation and analysis.
3 credit hours (3 total contact hours, 3 lecture hours)

CHEM 5319 – *Contem Topics in Analytical Chem*

Contemporary Topics in Analytical Chemistry. Selected topics of current interest in modern analytical chemistry. May be repeated for credit when topics vary.
3 credit hours (3 total contact hours, 3 lecture hours)

CHEM 5321 – *Advanced Organic Chemistry I*

Advanced Organic Chemistry I. A survey of the more important types of reactions in organic chemistry; reaction mechanisms, stereochemistry of intermediates and products; current structural theory.
3 credit hours (3 total contact hours, 3 lecture hours)

CHEM 5322 – *Advanced Organic Chemistry II*

Advanced Organic Chemistry II. Theoretical physical organic chemistry, bioorganic chemistry.
3 credit hours (3 total contact hours, 3 lecture hours)
Prerequisite(s): CHEM 6321 w/B or better

CHEM 5329 – *Contem Topics in Organic Chem*

Contemporary Topics in Organic Chemistry. Selected topic of current interest in descriptive and theoretical organic chemistry. May be repeated for credit when topics vary.
3 credit hours (3 total contact hours, 3 lecture hours)

CHEM 5331 – *Advanced Biochemistry*

Advanced Biochemistry. A survey of the organic and physical aspects of biological chemistry.
3 credit hours (3 total contact hours, 3 lecture hours)

CHEM 5339 – *Contem Topics in Biochemistry*

Contemporary Topics in Biochemistry. Selected topics of current interest in organic or physical aspects of biological chemistry. May be repeated for credit when topic varies.
3 credit hours (3 total contact hours, 3 lecture hours)

CHEM 5341 – *Analysis/Model of Bio Structures*

Analysis and Modeling of Biological Structures. Introduction to the principles and methods used for the three-dimensional structural determination and simulation of macromolecules of biological interest. Molecular recognition, conformational analysis, and molecular dynamics; ligand design and docking; and modern methods for protein structure determination. Course fee required.
3 credit hours (3 lab hours, 2 lecture hours)

CHEM 5351 – *Advanced Physical Chemistry I*

Advanced Physical Chemistry I. Schrodinger wave mechanics; atomic and molecular quantum states; applications to the treatment of wave functions for atoms and molecules.
3 credit hours (3 total contact hours, 3 lecture hours)



CHEM 5352 – *Advanced Physical Chemistry II*

Advanced Physical Chemistry II. Classical and statistical thermodynamics; applications to physical and chemical systems.

3 credit hours (3 total contact hours, 3 lecture hours)

Prerequisite(s): CHEM 6351 w/B or better

CHEM 5359 – *Contem Topics in Phys Chem*

Contemporary Topics in Physical Chemistry. Selected topics of current interest in experimental and theoretical fields of physical chemistry. May be repeated for credit when topics vary.

3 credit hours (3 total contact hours, 3 lecture hours)

CHEM 5361 – *Advanced Inorganic Chemistry*

Advanced Inorganic Chemistry. Ionic, metallic, and covalent bonding; valence bond, molecular orbital, and ligand field theories; structure and properties of coordination compounds, metal carbonyls, and complexes.

3 credit hours (3 total contact hours, 3 lecture hours)

CHEM 5369 – *Contem Topics in Inorganic Chem*

Contemporary Topics in Inorganic Chemistry. Selected topics in Inorganic Chemistry. May be repeated for credit when topics vary.

3 credit hours (3 total contact hours, 3 lecture hours)

CHEM 6396 – *Graduate Research in Chemistry*

3 credit hours (9 total contact hours, 9 other hours)

CHEM 5398 – *Thesis*

3 credit hours (9 total contact hours, 9 other hours)

CHEM 5399 – *Thesis*

3 credit hours (9 total contact hours, 9 other hours)

Code of Conduct

For all official policies of the University, please refer to the [Handbook of Operating Procedures](#).

Academic Integrity

Students are expected to maintain absolute integrity and a high standard of individual honor in scholastic work undertaken at the University. At a minimum, you should complete any assignments, exams, and other scholastic endeavors with the utmost honesty, which requires you to:

- Acknowledge the contributions of other sources to your scholastic efforts
- Complete your assignments independently unless expressly authorized to seek or obtain assistance in preparing them
- Follow instructions for assignments and exams, and observe the standards of your academic discipline
- Avoid engaging in any form of academic dishonesty on behalf of yourself or another student

“Academic integrity is a commitment to fundamental values: honesty, trust, fairness, respect, and responsibility. From these values, flow principles of behavior that enable academic communities to translate ideals into action.” Specifically, these values are defined as follows:

- Honesty: advances the quest for truth and knowledge by requiring intellectual and personal honesty in learning, teaching, research, and service
- Trust: fosters a climate of mutual trust, encourages the free exchange of ideas, and enables all to reach their highest potential
- Fairness: establishes clear standards, practices, and procedures and expects fairness in the interaction of students, faculty, and administrators
- Respect: recognizes the participatory nature of the learning process and honors and respects a wide range of opinions and ideas
- Responsibility: upholds personal responsibility and depends upon action in the face of wrongdoing
 - As stated in The Center for Academic Integrity handbook, “The Fundamental Values of Academic Integrity,” p. 4 Des Plaines, Illinois

This information and how to avoid plagiarism is located on the [Office of Student Conduct and Conflict Resolution website](#).

Scholastic Dishonesty

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable to another person.

Cheating

- Copying from the test paper of another student
- Communicating with another student during a test
- Giving or seeking aid from another student during a test
- Possession and/or use of unauthorized materials during tests (i.e. Crib notes, class notes, books, etc.)
- Substituting for another person to take a test
- Falsifying research data, reports, academic work offered for credit

Collusion

- Unauthorized collaboration with another person in preparing academic assignments

Plagiarism

According to the U.S. National Science Foundation, plagiarism is “the appropriation of another person’s ideas, processes results, or words without giving appropriate credit” (45 Code of Federal Regulations, Section 689.1). Plagiarism includes verbatim or near-verbatim copying and very close paraphrasing of text or results from someone else’s work. Plagiarism also includes self-plagiarism (duplicate publication).

The consequences of plagiarism include, but not limited to, loss of Teaching Assistant or Research Assistant eligibility, expulsion from the university, and loss of professional credibility.

The responsibility of the student is to:

- Assemble and analyze a relevant set of sources
- Clearly acknowledging when drawing on other’s ideas/phrases
- Learning how to accurately and clearly cite sources
- Referring to their PI/instructors when unsure on how to cite sources

For guidelines and best practices, please visit the following:

- [American Chemical Society Ethical Guidelines](#)
- [Council of Writing Program Administrators Best Practices](#)

This information and information on how to deter academic dishonesty is located on the [Office of Student Conduct and Conflict Resolution website](#).

Acceptable Use of Artificial Intelligence (AI)

The University provides access to Microsoft Co-Pilot, which contractually safeguards your information and protects your data from public disclosure. Any use of AI must be aligned with university values and policies to maintain academic integrity. For more information on responsible use of AI in research, please see here: <https://www.utep.edu/research/ai-research/guidance.html>.

UTEP Policies

For all official policies of the University, please refer to the [Handbook of Operating Procedures](#).

FERPA

It is the policy of The University of Texas at El Paso to protect the privacy and records access rights that apply to records maintained by or for the University about its current and former students of its institutions by complying with FERPA at all times.

For the full explanation of FERPA, please see [Chapter 6: Educational Records](#) from the [Handbook of Operating Procedures](#).

Non-Discrimination Policy

The University of Texas at El Paso is an Equal Opportunity/Affirmative Action Employer. UTEP and this program does not discriminate on the basis of race, color, national origin, sex, religion, age, disability, genetic information, veteran's status, sexual orientation, or gender identity. The Equal Opportunity Policy and Affirmative Action Plan shall be implemented throughout the University. All regulations, programs, and documents required by these regulations are available for inspection by employees, applicants for employment, and the general public in the University Equal Opportunity/Affirmative Action Office on any workday. Any member of the University community who engages in discrimination or other conduct in violation of University policy is subject to the full range of disciplinary action, up to and including separation from the University.

Please see [Chapter 1: Equal Opportunity/Affirmative Action/Non-Discrimination Policy](#) from the [Handbook of Operating Procedures](#) for the full policy guidelines.

For more information, please visit the UTEP Equal Opportunity Office website:
[UTEP Equal Opportunity Office](#)

Accommodations

The University of Texas at El Paso is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applications for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University.

Please see [Chapter 2: Accommodations for Individuals with Disabilities Policy](#) from the [Handbook of Operating Procedures](#) for the full policy guidelines.

Please visit the Center for Accommodations and Support Services website for more information on accommodations:
[UTEP Center for Accommodations and Support Services](#)

Sexual Harassment and Sexual Misconduct

The University of Texas at El Paso is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with the Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in education programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct will not be tolerated and will be subject to disciplinary action.

Please see [Chapter 3: Sexual Harassment and Sexual Misconduct](#) from the [Handbook of Operating Procedures](#) for the full policy guidelines.

Concealed Handgun and Weapons Policy

Individuals licensed by the State to carry a concealed handgun (License Holder) may carry a concealed handgun in approved areas on the University campus. Exceptions including exclusion areas apply.

Please see [Chapter 10: Concealed Handguns and Weapons Policy](#) from the [Handbook of Operating Procedures](#) for the full policy guidelines.

Title IX

The University of Texas at El Paso is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in any federally funded educational programs or activities.

Title IX protects students, employees, applicants for admission and employment, and other persons from all forms of sex discrimination including sexual misconduct, sexual harassment, and acts of sexual violence. Sexual violence may include rape, sexual assault, sexual battery, sexual coercion, stalking, and relationship violence. Title IX prohibits institutions from excluding, separating, denying benefits, or otherwise treating individuals differently on the basis of sex. Sex based discrimination is prohibited at UTEP both by law and by University and UT System policies.

For additional information or questions, please contact the Title IX Coordinator, who can be reached by phone at 915-747-8358, by email at titleix@utep.edu, or by mail at 500 W. University Ave, El Paso, TX 79968, Kelly Hall, Room 312. In addition to or in lieu of contacting the Title IX Coordinator, inquiries relating to Title IX may also be sent to the Assistant Secretary of the Office for Civil Rights.



Links

[UTEP Chemistry & Biochemistry Department](#)

[UTEP Graduate School](#)

[UTEP College of Science](#)

[Handbook of Operating Procedures](#)

[UTEP Office of Community Standards](#)

[MyUTEP \(access to Goldmine, Blackboard, Webmail, etc.\)](#)



Forms and Documents

[New Student Check-In Form \(*coming soon*\)](#)

[Selection of Research Advisor Form](#)

[Thesis Defense Form](#)

[Graduating Student Check-Out Form](#)