DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING

GRADUATE STUDENT HANDBOOK

For incoming and current UNL graduate students in the Chemical and Biomolecular Engineering Program

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Introduction

Program Overview

College of Engineering

The College of Engineering is committed to bringing bright, energetic, and innovative graduate students from diverse populations to the University of Nebraska – Lincoln. We offer graduate degrees in numerous academic areas in two locations: Lincoln on the City Campus and East Campus; and Omaha on the University of Nebraska at Omaha's (UNO) Scott Campus. The degree is awarded by the University of Nebraska.

The university supports students by offering a comprehensive professional development program that includes workshops for grant writing and management, publishing, curriculum vita and portfolio development, and interviewing skills. Students with teaching assistantships also access a wide range of resources supporting instructional development.

Department of Chemical and Biomolecular Engineering

The Department of Chemical and Biomolecular Engineering offers research and instruction leading to a master's degree in chemical engineering and a doctorate in engineering with a specialization in chemical and biomolecular engineering.

The chemical and biomolecular engineering faculty are actively involved in research related to Materials Science, Polymers, and Nanomaterials, Systems Biology/Biomedicine and Synthetic Biology, Biomedical Engineering, Metabolic and Biochemical Engineering, Thin Films and Membranes, and Computational Chemistry. Graduate coursework is offered in the advanced fundamentals of applied mathematics, chemical and biomolecular engineering, reaction dynamics and kinetics, thermodynamics, and transport phenomena.

The scope of chemical and biomolecular engineering work is far-reaching. Engineers are involved in a range of industries, including manufacturing, healthcare, environmental health, and biotechnology.

Faculty Members and their Research Areas

Vitaly Alexandrov

First-principles based computational modeling of materials properties, electronic structure, electron/ion transport, defects in solids.

Mona Bavarian

Artificial Intelligence, Machine Learning, Deep learning, Polymerization reaction engineering, Process modeling, simulation, optimization, and control of chemical processes and electrochemical systems; separation and purification processes; advanced manufacturing; process intensification; continuous flow chemistry.

Shudipto Dishari

Polymer, nanomaterials, energy, biomedical application

Yasar Demirel

Energy, Thermodynamic Analysis of Energy Systems, Sustainable Energy Management, Renewable Energy and Storage, Enhancement of Heater Transfer.

Srivatsan Kidambi

Neural and Stem Cell Tissue Engineering, Nanoscale Drug Delivery Systems for Gene Therapy, Novel Thin Films for Sensor Applications.

Gustavo Larsen

Ti-Containing Gels; Inorganic Oxide Materials; Molecularly Imprinted Oxides; Catalytic Nanofiber Design; Nanomaterials for Biomed Applications.

Siamak Nejati

Energy and Separation Sciences

Hossein Noureddini

Enzyme Immobilization; Enzyme Reactions; Renewable Resources.

Wei Niu

Apply metabolic engineering principles and synthetic biology tools to the microbial synthesis of industrial or other value-added chemicals from renewable feedstocks; develop new enzyme catalysts and auxiliary functional proteins for efficient and green synthesis of pharmaceutical precursors and energy molecules.

Rajib Saha

Systems and Synthetic Biology of microbes, fungi, microbial communities, and plants for biotech and biomedical applications.

Ravi Saraf

Electronic Skin; Electronics on Bacterium; DNA and Protein Chip.

Kevin Van Cott

Functional Proteomics; Protein Biochemistry.

William Velander

Plasma-Derived Medicines; Hemophilia Treatment; Coagulation Science; Transgenic Production of Biopharmaceuticals.

Hendrik Viljoen

Solid Phase Reactants; Thermal Stresses and Crack Development; Piezoelectric Sensors; Point-of-Care Diagnostics; Theoretical Investigation of Errors in Polymerase Chain Reaction Process.

ADJUNCT FACULTY

Chris Cornelius

Material Interrelationships between Structure, Physical Properties, and Transport of Natural and Synthetic Polymers, Ionomers, Hybrid Organic-Inorganic Materials, and SolGel Glasses.

Yuguo Lei

Use engineering expertise and human pluripotent stem cell (hPSC) biology to resolve unsolved human health problems; Develop new concepts and technologies for addressing the significant challenges in the process from benchtop to bedside for hPSC-derived cells.

Anuradha Subramanian

Bioseparations; Tissue Engineering.

Nicole Iverson

Biomedical engineering; Nanotechnology; Biological sensors; Disease development and resistance and Reactive oxygen and nitrogen species

Nirupam Aich

Advanced (nano)materials and processes for PFAS remediation and water treatment/reuse; Additive manufacturing or 3D printing for water treatment; Sustainable design of nanocomposite membranes for water treatment and resource recovery; Data driven (nano)material discovery for environmental remediation and separations and Global health inequity due to air, soil, and water pollution from electronic and plastic waste recycling (micro/nanoplastic pollution).

EMERITUS FACULTY

Jennifer Brand *Emeritus*

Supercritical Processing; Boron Carbide Devices; Polymers for Harsh Environments

James Hendrix *Emeritus*

Delmar Timm *Emeritus*

Composite Materials

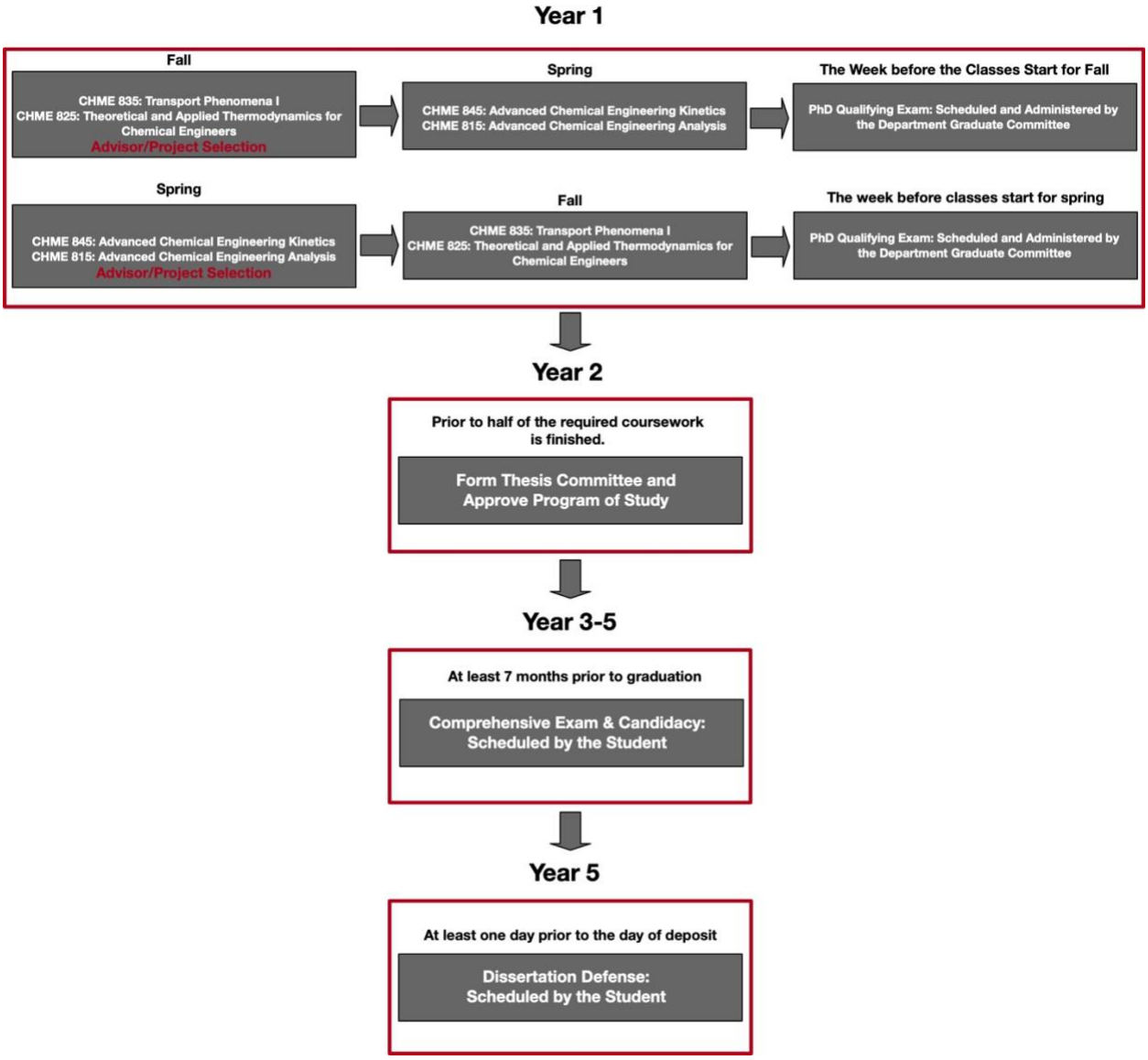
Xiao Cheng Zeng *Emeritus*

Surface/interfaces/dewetting; thermodynamics; nanoclusters and catalysis.

Getting Started

Overview of the steps to PhD completion

For more information: https://graduate.unl.edu/academics/program-steps



Admissions Requirements

Program requirements:

The Department of Chemical & Biomolecular Engineering adheres to the Admission Policies of UNL Graduate Studies. Prospective students are required to submit all documents by the specified application deadlines and meet the minimum entrance criteria outlined on the Application Checklist.

For additional information on Admission, visit the Graduate Catalog

Departmental admission requirements are:

- A cumulative grade point average of 3.0 on a scale of 4.0 or better in its undergraduate degree.
- Personal Statement
- Resume/Curriculum Vita
    - A professional resume or curriculum vita should be submitted. Please include the following: education, relevant work experience, relevant research experience, skills, involvement and participation, awards and honors, and other relevant information that may supplement your application.
- Letters of Recommendation
    - Three letters of recommendation are needed when applying. Recommenders should be academic references. In the application portal, applicants will be asked to provide names and contact information of their recommenders, the portal will contact the recommenders with further directions on how to securely submit the reference.

Incoming Students with a Chemical Engineering Background

An undergraduate degree in Chemical Engineering from an ABET-accredited (or equivalent) program is considered the necessary previous experience for direct admittance into the Ph.D. program.

Incoming Students Without a Chemical Engineering Background

Each applicant in this situation will be evaluated on a case-by-case basis by the graduate admission committee.

The Department requires that a Ph.D. student must pass the Qualifying Examination at the end of the first year, post-enrollment; for further information see *Qualifying Examination for PhD* Student.

Detailed Background Information

All students admitted into the MS and PhD programs and have not taken equivalent core courses of the program, must take the graduate core courses. Currently, the following 4 courses are considered core courses that will be counted toward a graduate degree in the Chemical and Biomolecular Engineering Department.

1. CHME 845 Advanced Chemical Engineering Kinetics
2. CHME 835 Transport Phenomena I
3. CHME 825 Theoretical and Applied Thermodynamics for Chemical Engineers
4. CHME 815 Advanced Chemical Engineering Analysis

To identify whether the graduate-level courses, taken in the past, can be transferred and counted as a core course, discuss with your immediate supervisor first. In the case that no supervisor is identified yet, first refer to the Graduate Chair.

The list below describes program eligibility for students with different backgrounds.

Prior Degree Obtained	Program Eligibility
BS Chemical Engineering	**Masters**: Granted full graduate standing and may immediately begin MS course work. **Direct to Ph.D. Option**: Provisional admission to our Ph.D. program with full graduate standing granted after successful completion of the following steps: 1. Take and successfully pass the core courses of the Chemical Engineering program (12 credit hours, see "Graduate Core Courses: Grade Requirements" section). The core courses must be taken the first time they are offered. A typical length of completion is one academic year. 2. Pass the Qualifying Examination Students who choose to take the Direct to Ph.D. Option bypass the MS thesis requirement.
BS Scientifically Related	Examples of scientifically related fields include, but are not limited to other engineering majors, chemistry, physics, materials science, bioscience, and premed programs. All other admission criteria must be met. **Masters:** Provisional admission to the MS program with full graduate standing granted after successful completion of the department's graduate core courses. Remedial (undergraduate) coursework may be prescribed by the student's academic advisor. After the students are admitted, to outline a specific program of studies, they need to meet their immediate adviser or the graduate chair and outline their program if studies **Direct to Ph.D. Option**: Provisional admission to our PhD program with full graduate standing granted after successful completion of the following steps: 1. Successful completion of deficiencies outlined by the adviser and graduate chair prescribed by the student's academic advisor. After being admitted, the student may request an advising appointment with either an assigned faculty advisor or the graduate chair; it is required to outline a specific program of studies based students 'educational background.

	2. Take and successfully pass the core courses of the MS Chemical Engineering program (12 credit hours, see "Graduate Core Courses: Grade Requirements" section). The core courses must be taken the first time they are offered. The typical length of completion is one academic year. 3. Pass the Qualifying Examination. Students who choose to take the Direct to PhD Option bypass the MS thesis requirement.
MS or MEng Chemical Engineering	**PhD:** Provisional admission. May immediately begin PhD course work including electives and dissertation hours. Full graduate standing granted after successfully passing the Qualifying Examination at the beginning of the second semester of enrollment.
MS Scientifically Related Field	Examples of scientifically related fields include, but are not limited to; other engineering majors, chemistry, physics, material science, bioscience and premed programs. All other admission criteria must be met. **PhD**: Provisional admission to our PhD program with full graduate standing granted after successful completion of the following steps: 1. Successful completion of deficiencies outlined by the adviser and graduate chair prescribed by the student's academic advisor. After being admitted, the student may request an advising appointment with either an assigned faculty advisor or the graduate chair; it is required to outline a specific program of studies, based students 'educational background. 2. Take and successfully pass the core courses of the MS Chemical Engineering program (12 credit hours, see "Graduate Core Courses: Grade Requirements" section). The core courses must be taken the first time they are offered. The typical length of completion is one academic year. 3. Pass the Qualifying Examination. 4.

All M.S. and Ph.D. students in the Department of Chemical and Biomolecular Engineering must complete the Memorandum of Courses form on, or before to the student's halfway point of the number of course credit hours required for graduation.

All M.S. students must enroll and successfully complete all of its graduate core classes, just as the Ph.D. students.

Enrollment

Information about Enrollment including establishing your Husker email address, obtaining your NUID and NCard, setting up your TrueYou, MyRED, etc. is common to all student attending graduate studies in the College of Engineering; for Further information please visit UNL COE general graduate Handbook.

Education & Training Requirements

All personnel involved in conducting research at UNL are highly encouraged to complete RCR training. However, in certain instances, this training is required in order to meet Federal, University and/or sponsor requirements. See more here: https://research.unl.edu/researchcompliance/rcr-education-training/.

General Office Procedures

Department office hours are from 8:00-5:00pm Monday through Friday. The department staff is responsible for support of operations that pertain directly to the functions and procedures of the department office. Office staff is not to engage in work relating to individual faculty/student research or projects unless directed and approved by the department chair.

Offices and Supplies

Graduate student/Post-Doc offices are furnished with eight desks. Although these offices are not always full to capacity, the possibility exists for 8 occupants to be assigned to an office.

As a courtesy to your office mates, please keep your area neat (not necessarily spotless or uncluttered, just tidy). Make sure food is not left open. When you graduate, please remove all of your personal possessions from your office and return your keys.

Copying Services

The Office Assistant is available to help with departmental copying projects. To ensure that your copying needs are met by your deadline, please send by email or give the copy assignment to the Office Assistant 24 hours in advance of your deadline**.** Particularly at the beginning and end of a semester, the Office Assistant has many responsibilities and sometimes cannot complete an assignment to copy multiple chapters of a textbook. The department copier is to be used only for department-related business. Copy paper is provided only for department-related business.

Janitorial Services

UNL Custodial Services provides daily cleaning of bathrooms in Othmer Hall, weekly sweeping and mopping of hallways, laboratories service corridors, and emptying of trash in all offices on

Wednesday evenings. Trash pick-up from laboratories varies according to the needs of the lab. The process needs to follow the Environmental Health and Safety guidelines.

Custodial Services does not dispose of recycling materials. We encourage recycling, especially of paper. If you participate in recycling, the staff can show you where to take it when your container gets full. If your trash receptacle has the standard recycling sticker on it, Custodial Services will not empty it. Please make sure you are putting your trash in a designated trash can.

Carpeting is vacuumed periodically, and the carpets are steam-cleaned once per year. Dusting/cleaning of furniture or equipment is not provided by UNL services. Faculty, staff, post-docs and students are expected to dust/clean their own offices and labs as they feel it is required or needed.

Purchasing Procedures

Before you order anything or use a service that requires payment with university funds, you must complete a **purchase order request form** and have it signed by your supervisor. You can ask **Udari Pathirana** for a blank purchase form.

Resources

College of engineering General Handbook provide further information about resources that are available to UNL graduate students. These resources include Emergencies and Crisis Situations, health and wellness, service for students with disabilities, academic leave of absence and NE ride. Students are encouraged to visit the UNL COE graduate handbook to obtain more information.

Professional Conduct

Professional conduct is highly valued at the University of Nebraska, to that end Graduate Studies and College of Engineering have a set of guidelines, outlining the expected standard at UNL. This information discusses the student conduct and community standard, academic integrity, nondiscrimination policy, policy for use of Service Animals, Sexual Misconduct Policy, Dealing with Conflict, and guidline for good practice in Graduate Studies. Students are encouraged to visit the UNL COE graduate handbook to obtain more information.

Assistantships and other Financial Support

Information about assistantships, responsibilities, types, Eligibility criteria, benefits, health insurance, registration and termination, summer tuition, Hiring and renewal, general responsibilities, performance evaluations, fellowships, loans and need-based application process, payroll and taxes, firefly, vacation policies are available in the general graduate handbook of the COE at UNL. Students are encouraged to visit the UNL COE graduate handbook to obtain more information.

Research

General information about research Safety, topic, and related property and intellectual properties are discussed in the COE handbook. Students are encouraged to visit the UNL COE graduate handbook to obtain more information.

Academic Policies

General information about the GPA requirements, withdrawing from a course, incomplete grades, student appeals process, program transfer policies and satisfactory progress are available in the UNL COE handbook. Students are encouraged to visit the graduate handbook to obtain more information.

Ph.D. Program Requirements

Selecting a research advisor

Temporary Supervisors and Laboratory Explorations

New graduate students are temporarily supervised by the chair of the department or the graduate chair until a research supervisor is determined. Students should talk with their temporary supervisor when making decisions concerning registration. During this time, it is the student's responsibility to schedule appointments with faculty members to identify available research projects and learn more about their research programs.

PhD Advisor/Project Selection for PhD Students

The department aims to grant graduate students maximum flexibility in selecting a thesis topic, considering the department's financial resources and faculty interests. At the commencement of the Fall Semester, newly enrolled graduate students will attend the CHME 900 Seminar class to hear presentations on available thesis topics from faculty members offering PhD research positions. All relevant materials will be accessible on Canvas. Over the presentation period, new students can engage in one-on-one discussions with faculty members presenting thesis research topics, providing an opportunity for an in-depth exploration of available options. It is anticipated that each student will engage with all faculty members offering topics aligning with their interests (minimum of three). These meetings also serve as a platform for faculty to assess students as potential research assistants in their laboratories.

Upon the conclusion of all project presentations to incoming students, each individual must choose at least three topics, ranking them in order of preference (1st, 2nd, and 3rd choices), accompanied by a brief description of the project and their interests and qualifications. This information is to be submitted to the graduate chair.

The allocation of thesis research topics to students' preferences will be determined through consultation with the students and involved faculty members. Every effort will be exerted to assign students their first or second choices. It is important for students to understand that individual faculty members can only accommodate a limited number of new students, and the Department is committed to providing faculty with sufficient students to fill available funded

projects. In the event that a student is dissatisfied with the assigned topic, they have the option to appeal the decision to the chair of the department. It should be noted that faculty limitations may impact the ability to fulfill all first or second choices.

For new graduate students entering during the Spring Semester or Summer, there will be no seminar presentations of thesis topics by faculty. Instead, students will receive a list of available thesis topics and are required to meet with the respective faculty members individually. The listing will be accessible through the graduate chair.

IF Unassigned at the End of the First Semester

In certain instances, students may encounter challenges in identifying a suitable project to work on. In such cases, the department may offer financial assistance for the Spring semester through a half-time Teaching Assistant (TA) assignment or other forms of service to the department. It is imperative for students during this period to actively seek out projects they can engage in. During the Summer semester, financial aid from the department will not be provided unless the student is involved in research. If, at the commencement of the second Fall semester, a student remains unassigned to a research project, they will no longer be eligible for further financial aid from the department. In such cases, dismissal from the Chemical and Biomolecular Engineering Graduate Program may occur due to a lack of timely progress toward the Ph.D. degree.

Changing advisors

Student can change advisor at any point during their studies; however, no portion of the work completed in their previous advisor's laboratory can be used in formulating their dissertation unless their previous advisors make such request, or the student have the legal rights to the intellectual property notarized and approved by UNL.

While rare, situations may arise where a Ph.D. student desires to switch research groups due to irreconcilable conflicts. The student is recommended to contact the chair of the department in writing and outline the perceived issue and ask for direction and resources. Since conflict in academic setting is a multi-faceted problem the chair after documentation of the request shall decide on the proper course of action. In rare cases a committee for hearing can be formed to serve the interest of both parties involved.

The student should meet with the new advisor and establish a plan to meet academic requirements and research expectations.

Deficiency Course Requirements

Depending on the background of the student, it is best to discuss with the Graduate Chair and Research advisor for deficiency course before taking core courses to ensure success in the core courses.

Core Course Requirements

Core courses are required to be taken by all students studying for a PhD in chemical and biomolecular engineering. All core courses will be offered every academic year. Eligible students must enroll in the core courses the **first time** they are offered. The core courses are:

1. CHME 845 Advanced Chemical Engineering Kinetics
2. CHME 835 Transport Phenomena I
3. CHME 825 Theoretical and Applied Thermodynamics for Chemical Engineers
4. CHME 815 Advanced Chemical Engineering Analysis

Transfer of Credits

All first-year students are mandated to enroll in two core courses during their initial Fall and Spring semester. The department typically does not recommend transfer of these classes. However, if a student from a recognized program which teaches these classes with similar academic rigor could appeal to the graduate curriculum committee for transfer of credit of these core classes. The curriculum committee will meet early in the fall and spring (if needed) to decide on the transfer of any core classes. As far as transferring other elective classes relevant to the program or the student's research, a discussion needs to happen between the student, the advisor, and the graduate chair. In any of these cases, the most important requirement is the syllabus (in typical US format which including details of the class including outcomes, grading policies, textbooks, and subject matter). Without having these details available, the graduate chair or the curriculum committee would not proceed. Altogether, no student will be able to transfer more than 23 credits (as per the UNL Grad Studies guideline) in which no class with a grade B or less or with a grade 'P' or any seminar class will be considered.

Specialization Course Requirements

To retain full graduate standing, a student enrolled in the graduate Chemical and Biomolecular Engineering program must secure a minimum cumulative grade average of B in the program's core courses, with no C or less in any core class. In addition to the grade requirements stated here, all M.S. and Ph.D. graduate students must secure a cumulative grade point average of 3.0 or higher.

Seminar Requirements

Attendance at all chemical engineering department seminars is required for all chemical engineering graduate students, starting their third semester, and is strongly encouraged for first-year graduate students. Starting on the third semester, students must register for the one-credit seminar series (CHME 900) activity, and only one absence will be allowed to receive full credit i.e., student attendance will be recorded. At the discretion of the instructor in charge of the seminar series, students may be asked to either orally present at the end of the semester a summary of what they learned from some or all of the departmental seminars, or to write a concise summary of each seminar. The faculty member in charge of the seminar program for the year will circulate a list of the seminars at the beginning of the semester.

Qualifying Exam (QE)

It is the students' sole responsibility to initiate discussions with their research advisor and prepare for the QE in a timely manner. Barring unavoidable circumstances such as health issues; personal challenges the QE must be taken according to the policies and timelines defined herein. It is up to the Department Chair, in consultation with the Graduate Chair and the primary research advisor, to determine and approve the delay in the scheduling of QE.

Important Dates

For the students joining in the Fall/summer, the qualifying exam will need to be scheduled in August next year (with the last day will be the Friday in the week before the next Fall semester begins). For the students joining in the Spring, the timeline will be January next year (with the last day will be the Friday in the week before the next Spring semester begins). The student is responsible for coordinating, in consultation with his/her primary advisor, the formation of the three-member Examination Committee (EC) and the setting the QE date. In order to form EC, the student and the advisor will propose two faculty members to the Department Chair, while the third one will be recruited by the Department chair. The advisor can choose to be there during the QE. However, his/her responsibility is to introduce the student to the committee and facilitate discussion. The advisor will not have any voting power. If recommended by the committee, only one retake of the QE shall be allowed, which must, in turn, be scheduled within 4 weeks of the initial QE.

Exam Format

The primary goals of the qualifying exam are to evaluate a student's foundational knowledge and skills essential for pursuing a Ph.D. in chemical engineering and to provide a platform for the student to receive guidance and feedback from multiple faculty members regarding their short-term research objectives and trajectory. This examination consists of both an oral component, scheduled at the end of the first year, and a written component, which is due one week prior to the oral examination.

Consider the Qualifying Exam as a preliminary document akin to a white paper outlining the Ph.D. thesis research. The exam will revolve around the development of the student's initial research endeavors, and the deliverables are expected to encompass the following key elements:

1. **Introduction:**
    - Briefly introduce the broad motivation and objectives of the research task discussed during the exam.
    - Include a concise summary of critical literature pertinent to the field.
2. **Approach and Techniques:**
    - Provide a comprehensive description of the approach undertaken, detailing the relevant technique(s) employed in the research.

3. **Summary of Recent Efforts:**
    - Summarize the recent research efforts undertaken by the student.
    - While it is desirable, presenting preliminary results on the project is not mandatory for the qualifying exam.
    - Examples of research efforts may include experiments, computations, technique development, data interpretation, and mastery of research-related techniques.
4. **Research Plan and Future Direction:**
    - Outline a description of the research plan and articulate the anticipated direction for the next 9 months to a year.

The qualifying exam serves as a crucial juncture for both assessment and constructive feedback, ensuring that students are well-prepared and on the right trajectory for their Ph.D. thesis research in chemical engineering.

Criteria for a Successful Exam and Possible Outcomes

Students will undergo a comprehensive assessment comprising a written report, an oral presentation lasting 15-20 minutes, and a question-and-answer session lasting 20-30 minutes following the oral presentation. The entire oral exam will not exceed 50-55 minutes. The written report is limited to a maximum of 5 single-spaced pages, inclusive of all content except references. Page margins must be 1", and font size should be 11 pt for Calibri or Arial fonts, or 12 pt for Times New Roman. Page and line numbers must be added to facilitate committee feedback on specific content.

The written report should encompass a brief introduction, the rationale for the research, the hypothesis to be tested, the general approach to be employed, and any specific aims. While students may consult with their advisors on the availability of background materials and the formulation of research objectives, the writing and editing of the written report should be solely the work of the student. This document serves to fulfill the University's requirement for the English Competency Exam.

To successfully pass the qualifying exam, a student must demonstrate proficiency in the following areas:

1. **Mastery of Chemical Engineering Fundamentals:**
    - Showcase a deep understanding and command of fundamental concepts in chemical engineering.
2. **Understanding of the Scientific Method:**
    - Exhibit familiarity with the scientific method, including observation, hypothesis generation, hypothesis testing, and analysis.
3. **Effective Presentation and Communication:**
    - Present and communicate technical ideas and concepts related to the student’s research in a clear and compelling manner.
4. **Verbal and Written Communication Skills in English:**

- Demonstrate effective verbal and written communication skills in the English language.

The qualifying exam serves as a rigorous evaluation to ensure that students not only possess a strong foundation in chemical engineering but also excel in scientific inquiry and effective communication.

Examination Committee (EC) Makeup

The EC shall be composed of the student's PRA (nonvoting member), a faculty member appointed by the Department through the Department Chair, a faculty member from the student's research committee, and a departmental faculty member selected by the student Replacement of one or more EC members for an eventual QE retake shall only be voluntary, accidental, or mandated by the Department i.e., a parting EC member has to either, a) freely decide to remove himself from the EC, b) be unable to be present at the scheduled QE retake date (e.g., health reasons, by way of non-limiting example), or c) be removed by the Department Chair. Immediately upon assembly, the EC shall elect its chairperson via a simple majority vote, conducted by the research advisor either by calling the first EC meeting, or via electronic communication. If no chairperson can be elected by way of simple majority vote, the Department Chair, in consultation with the student's research advisor, shall appoint the EC Chair from one of the three EC voting members.

Conditions for Scheduling of Qualifying Exam

To be eligible for the qualifying exam, students must meet specific prerequisites, including obtaining a minimum GPA of 3 in the 4 core courses with only one C course grade permitted. This requirement is in place to ensure that all Ph.D. students possess a solid understanding of core chemical engineering fundamentals necessary for advanced study and professional opportunities.

Students failing to meet the GPA prerequisite will be directed to take the M.S. preliminary exam, scheduled concurrently with the Ph.D. qualifying exam, and complete an M.S. thesis. Only after fulfilling these requirements can students submit a petition seeking exemption from the GPA requirement. The student's thesis advisor will decide whether to allow continued pursuit of the M.S. degree. Upon M.S. degree completion, a written petition, including a letter from the thesis advisor, can be submitted to continue toward the Ph.D. study. Faculty discussions will ensue, with approval contingent on the student's exceptional research performance leading to significant research results. If approved, completing both the M.S. preliminary exam and thesis defense will be considered equivalent to meeting the Ph.D. qualifying exam, allowing the student to proceed with Ph.D. studies.

For core courses with a grade of C or lower, re-taking is mandatory to continue in the Ph.D. path after passing the M.S. preliminary exam. In cases where an M.S. track student excels exceptionally in the preliminary exam, the exam committee and faculty advisor may propose waiving the 3.00 GPA prerequisite, returning the student to the normal track of the Ph.D. program. Faculty meeting discussion and approval by the majority of attending faculty members will be required for the suggested waiver to be granted.

Criterion of Research Performance

The thesis advisor's evaluation of the student's research performance will be an additional criterion considered in the pass/fail decisions for the qualifying exam. The thesis advisor is required to provide the qualifying exam committee with a written assessment of the student's research performance.

Retake policies

The examination committee holds the authority to inquire into any aspect of the student's preparation and progress. Failure of the student to demonstrate proficiency in one or more of the specified criteria will result in the failure of the exam. The exam committee may, at its discretion, permit a maximum of one retake for any student who fails the exam. If a retake is recommended, it must occur within 4 weeks, with the same committee, and the scheduling will be the responsibility of the student. Not passing the QE examination for a second time shall be constitute sufficient reason for dismissal from the graduate program, and it is at the sole discretion of the Department, in consultation with the EC, to determine if the unsuccessful candidate may pursue a terminal MS degree. There are no guarantees, after failing the QE for a second time, that the Department will be able to offer any form of financial support to pay for the student's MS terminal degree. Decisions of the EC regarding a QE retake shall be final.

Academic Eligibility

All candidates for graduate degrees at all-time must maintain good standing in their course work, good standing is defined as overall grade point average (GPA) equal or better than B, as described in previous sections. Enrollment for one semester of probation is usually permitted to remedy an unsatisfactory GPA. If a student fails to make satisfactory progress toward the degree, permission may be denied continuing the program. This decision may be reached by the student's advisory committee or the Chemical Engineering Graduate Program Chair and recommended to the Graduate School.

CHBE Symposium

All doctoral (Ph.D.) students are required to take part in the departmental research symposium at the commencement of their second year in the program (after passing the QE). Typically scheduled in early September each year, this symposium serves as a platform for Ph.D. students to showcase and present their research findings and advancements. Participation in the symposium is a significant component of the doctoral program, offering students the opportunity to share their work with peers, faculty, and other members of the academic community.

The research symposium provides a forum for students to communicate their research contributions, engage in scholarly discussions, and receive valuable feedback from the academic community. This experience not only contributes to the academic and professional

development of Ph.D. students but also fosters a collaborative and interactive research environment within the department.

By participating in the research symposium, doctoral students contribute to the dissemination of knowledge, gain exposure to diverse research endeavors within the department, and strengthen their presentation and communication skills. Overall, the symposium plays a crucial role in fostering a vibrant and intellectually stimulating research community within the department.

Constructing a Program of Study

A Program of Study must be filed in Graduate Studies prior to completion of half the coursework for the doctoral program. A student may **NOT** file a Program of Studies and graduate in the same semester or summer term.

- At least half of the graduate work, including the dissertation will be completed in the student's major.
- The Program of Study must contain at least 90 credit hours, including 12 to 55 hours of dissertation.
- Must include any departmental language or research tool requirements.
- Must be filed within the same semester as the appointment of the Supervisory Committee.
- The time limit on granting the doctoral degree is eight years from the time of filing the student's Program of Studies in Graduate Studies.

Any subsequent change in program is approved by the Supervisory Committee and the action reported to Graduate Studies using the Program of Studies: Course Changes form. The Supervisory Committee will determine what course work taken prior to filing of the Program of Studies, including hours earned toward the Master's degree(s), will be accepted. .

- The Supervisory Committee is not obligated to reduce the doctoral Program of Studies by applying coursework completed prior to its appointment.
- Prior course work is assessed in relation to its contribution to framing a research foundation for the degree. Each course accepted must be current and relevant in relation to the desired degree.
- No graduate credit will be accepted from a previously awarded doctoral degree from any institution, including UNL.

Additional information can be found in the Graduate Catalog.

Appointment of the Doctoral Supervisory Committee

A. After successfully passing the Ph.D. qualifying exam and before proceeding to the comprehensive exam, the appointment of the doctoral committee is a crucial step. The nomination of the doctoral committee is carried out by the Associate Head for the McWhirter Graduate Program, taking into consideration input from the student and the student's advisor.

B. The doctoral committee is required to comprise a minimum of 3 graduate faculty members in the major field (Chemical Engineering) and at least 1 faculty member outside the major field, referred to as the "Outside Unit Member." The committee chair is typically the candidate's research advisor. The primary responsibilities of the chair include:

1. Maintaining the academic standards of the doctoral program, and the Graduate Studies.
2. Ensuring the comprehensive examination and final oral examination are conducted in a timely manner.
3. Ensuring that the requirements set forth by the committee are incorporated into the final version of the dissertation.

The outside member should have no conflicts of interest with the student's department, such as a budgetary connection or serving as a co-principal investigator with any other committee members. The primary duties of the outside member are:

1. Maintaining the academic standards of the Graduate School.
2. Ensuring that all procedures are carried out fairly.

C. The committee is required to meet with the student at least once a year to review the progress of the research, initiated at the call of the advisor or the student. When the student is prepared to write the initial draft of the dissertation, they may schedule a committee meeting to present their results for discussion and criticism.

D. The student's doctoral committee assumes the responsibility of guiding the course of study undertaken by the student, ensuring that it aligns with the academic standards and requirements of the doctoral program.

Changes to Supervisory Committee

Changes to the Supervisory Committee may be made if the Supervisory Committee chair leaves the employ of the University or retires or is otherwise unable to serve on the Committee. The Office of Graduate Studies must be notified immediately and a change in the Supervisory Committee made as follows:

- If the student has achieved Candidacy, the former chair who has left the employ of the University may continue to serve as co-chair of the Supervisory Committee, with the approval of the departmental Graduate Committee and the UNL Dean of Graduate Studies. A second co-chair must be appointed who is a resident Graduate Faculty member.
- If the student has not yet achieved Candidacy, a new chair of the Supervisory Committee who is a resident Graduate Faculty member must be appointed immediately, with the agreement of the departmental/school Graduate Program Committee and the UNL Dean of Graduate Studies.
- If a member of the Supervisory Committee other than the chair leaves the employ of the University, or retires, a replacement should be appointed who is a resident graduate faculty member. In certain circumstances where special and needed continuing expertise

is involved and the faculty member is willing to continue serving, he/she may continue as a member of the Supervisory Committee, with the approval of the Supervisory Committee Chair and the concurrence of the UNL Dean of Graduate Studies.

Graduate faculty who has retired and been appointed to emeritus status may co-chair the supervisory committees of doctoral students with a resident graduate faculty member. Emeritus faculty may continue to serve as members of committees.

Changes may be made to a Supervisory Committee any time prior to the submission of the Application for Final Oral Exam using the Change of Committee form.

PhD Comprehensive/Candidacy Exam

The comprehensive exam, a requirement for all doctoral candidates by the Graduate Studies, necessitates the submission of a dissertation proposal as part of its fulfillment. The candidate is expected to present a finished report in writing to their doctoral committee, defending it orally after acceptance. Completion of the comprehensive exam is expected within the first half of Ph.D. program and at least seven months prior to the final defense.

The dissertation proposal should mirror the nature and quality typically submitted to funding agencies such as the National Science Foundation. It must define a significant problem, review current literature, critically assess the state-of-the-art, propose investigation methods, and contribute new information, data, or preliminary results suitable for submission to research sponsors or publication in a journal. A mere compilation of published papers is not acceptable as a dissertation proposal. It is advised to adhere to the guidelines provided for research proposals submitted to the National Science Foundation.

The main body of the proposal is limited to 15 single-spaced pages, including figures and tables, with 1” margins, and using a font size of 11 pt for Calibri or Arial fonts, or 12 pt for Times New Roman. The proposal document should have a section titled "Detailed Research Plan," offering a comprehensive description of the dissertation research plan with sufficient depth and breadth. The written document must be submitted electronically to Cathy Krause at least two weeks before the scheduled exam date.

The oral defense, lasting 30-40 minutes, involves a presentation by the candidate on the highlights of the work, followed by questions from the Doctoral Committee. The oral defense aids in developing the candidate's technical communication skills and demonstrates their knowledge of the area. The oral examination must be officially scheduled through the Graduate School at least three weeks prior to the exam date. Successful completion of the English competency requirements is a prerequisite for scheduling the Ph.D. comprehensive exam.

The doctoral committee is empowered to inquire into any aspect of the dissertation proposal. Failure to demonstrate research competency results in exam failure. The committee may, at its discretion, permit a maximum of one retake. The committee recommends specific deficiencies to address, and the timing for the retake is the student's responsibility. The committee may also decide whether the student should graduate with the M.S. degree (with a full thesis defense) or be terminated from the program immediately.

Note: If more than 6 years elapse after passing the comprehensive exam, the student must pass a second comprehensive exam at least 3 months before scheduling the final oral dissertation defense.

Admission to Candidacy

An application for Admission to Candidacy is filed when the candidate has met all provisional admission requirements, satisfied language and research tool requirements, and passed the comprehensive examination(s). This form must be filed in Graduate Studies at least seven months prior to the final oral examination (defense).

Maintaining Active Status, Full-Time Certification

All graduate students must maintain full-time active status while completing the requirements of the M.S. or PhD. Degree. Graduate students are considered full-time when registered in 9 credit hours during the fall and spring semester whether or not they hold a graduate assistantship. If a student must suspend enrollment, they should consult with the Office of Graduate Studies regarding an Academic Leave.

Doctoral students in candidacy or master's students in the Option 1 or A degree program are allowed to be under-enrolled for a certain time limited while earning their degrees. They need to request to be full-time certified (maintain full-time active status) each semester they are under-enrolled. To be eligible for full-time certification, students must be registered for at least one credit hour in the current fall or spring semester (or summer if needed) and have been registered at least half time (at least 4 credits) in the fall and spring terms prior to the initiation of the full-time certification status. To request full-time certification, students need to fill out the form at https://research.unl.edu/gradstudies/fulltime/

Master's students may use the full-time certification no longer than 12 months from first use; doctoral candidates may use the full-time certification no longer than 24 months from first use. All students using the form have to be registered (that's a requirement for the form) regardless of whether they are master's or doctoral students. Students pursuing a Master's Option II, Option III, or Option B degree are not eligible for full-time certification.

Graduate students do not need to enroll in classes during the summer; however, they will not have access to some campus facilities or services such as online libraries, campus rec, or certain buildings. If on an assistantship, the lack of enrollment may affect the withholding of payroll taxes for the duration of no enrollment.

Dissertation preparation and approval

The dissertation has no fixed length. Students work with the advisor and/or Supervisory Committee to determine the subject of the dissertation. The dissertation abstract may not exceed 350 words in length. Review the Preparing a Dissertation for formatting required by Graduates Studies. Style guidelines are determined by the student's discipline but must take into consideration the formatting guidelines and restrictions of the Graduate Studies Office

Reading Committee

Following approval by the major advisor, the dissertation and abstract should be presented to the Reading Committee for review at least four weeks prior to the oral examination. The Reading Committee consisting of two members from the Supervisory Committee, excluding the Chair or co-Chair, must sign the Application for Final Oral Exam.

An application for Final Oral Exam is due in Graduate Studies at least two weeks prior to the scheduled defense, indicating that the committee chair(s) and the readers have read the dissertation, find it suitable for a defense, and grant permission for the defense to be held. All committee members should be given sufficient time to read the dissertation prior to the defense.

If only one member of the Reading Committee dissents, the dissertation defense or oral exam may proceed upon written recommendation by the supervisory committee, accompanying the Application for Final Oral Exam.

PhD Dissertation Defense

The dissertation defense is a crucial step in the doctoral process and should be carefully conducted following established guidelines:

1. **Scheduling the Defense:**
    - The student will schedule a dissertation defense at least three weeks before the proposed exam date.
2. **Submission of Final Draft:**
    - After completing the final draft of the dissertation, it must be given to each committee member at least two weeks before the scheduled examination.
    - The dissertation should be complete and in its final draft, with correct and polished content and style, including appropriate notes, bibliography, tables, etc.
3. **Review by Committee Members:**
    - If a committee member finds issues with the final draft's content or style, they must inform the committee chair/dissertation adviser at least one week before the examination date.
    - The committee member should express concerns and may recommend considering postponing the examination.
    - The committee chair/adviser, in consultation with committee members, will assess whether the student can make necessary revisions before the examination date. If not, the final oral examination must be postponed.
4. **Dissertation Defense Guidelines:**
    - All parts of the defense are public, except the final deliberations of the committee.
    - The student initiates the defense with a presentation of the work, typically not exceeding 45 minutes.

- The general audience is then allowed to ask questions.
- The committee follows with questions based on their study of the dissertation, serving as the final oral examination required by the Graduate School.
- At least two hours must be allocated for the defense.
- The committee meets in an executive session.

5. **Committee Decision:**
    - If at least two-thirds of the committee members from the Chemical Engineering faculty deem the dissertation satisfactory, the student passes the examination.
    - The committee decides how to implement improvements in the final draft, if needed.
6. **Unsatisfactory Dissertation:**
    - If the dissertation is not deemed satisfactory, the committee determines whether another examination may be taken by the student.
7. **Post-Defense Steps:**
    - Upon successful completion of the defense, the student makes necessary corrections to the draft, obtains the committee's (majority) approval, and properly formats and edits the final copy.
    - The student submits the dissertation to the Graduate School along with the required Doctoral Signatory Page.
    - The dissertation is expected to be submitted in the same semester as the oral defense.

These guidelines ensure a thorough and fair evaluation of the dissertation, maintaining academic standards and facilitating the successful completion of the doctoral process.

Dissertation Information

The Graduate Studies at UNL has established specific format standards that must be adhered to for a dissertation to receive final approval as part of graduate requirements. This office is responsible for reviewing every dissertation for format compliance. It is important to note that this review process does not involve editing for spelling, grammar, or punctuation.

Upon submission to the Graduate Studies, a dissertation must meet the formatting and deadline requirements outlined in the Thesis and Dissertation Guide. Detailed information regarding these standards can be accessed through the Graduate Studies website. It is crucial for graduate students to familiarize themselves with these guidelines and ensure that their submissions align with the specified format standards and deadlines.

Depositing

Following the successful completion of the oral examination, the student should complete the remaining Doctoral milestones. Only abstracts and dissertations that meet all published requirements can be approved and stamped for depositing. Depositing also involves payment

of a processing fee and, if applicable, a fee to register a copyright.

Time to Complete a Doctoral Degree

A doctoral degree student is expected to complete all degree requirements within eight years of filing the Program of Studies in Graduate Studies.

Awards and Honors

The CHBE Graduate Program is dedicated to recognizing outstanding performance among its graduate students through various awards. The award categories and criteria are as follows:

1. Excellence in Teaching:

At the end of each semester, faculty nominations for outstanding teaching assistants are sought. Criteria for excellence in teaching include:

- Interaction with students
- Involvement in teaching beyond minimal requirements
- Originality in defining the teaching assistant position
- Resourcefulness
- Dependability

2. Annual Competition for "Best Paper":

Each summer, applications will be solicited for the annual chemical engineering best paper competition. This competition is open to students who have passed the QE and to post-doctoral scholars. Applications should be submitted to the department office by **the first Friday in August.** The application procedure is initiated by the student or post doc. The application package includes the manuscript to be considered, a supporting letter from the student's adviser, and a CV. The manuscript must have been published within the 12 months prior to the deadline or have been accepted for publication (a letter of acceptance is required).

The student or postdoc should request the letter from their adviser, which will be submitted directly to the department. The letter must address to what extent the student contributed to the interpretation in and the writing of the submitted manuscript. Submissions will be judged by a committee of faculty. Criteria for excellence in the best paper competition includes:

- Originality of research and advancements enabled in the student's area of research
- Clarity with which the results are presented and placed within the general context of their scientific area

3. Three Minute Thesis Competition:

The Three Minute Thesis competition celebrates the exciting research conducted by Doctor of Philosophy students and their academic, presentation, and research communication skills. The competition supports their capacity to effectively explain their research in three minutes, in a language appropriate to a non-specialist audience. The competition will be part of the CHBE symposium and all the students who have passed their qualifying exams are eligible to participate.

Comprehension and Content

The evaluation criteria for the Three Minute Thesis (3MT) competition are focused on assessing the presenter's ability to effectively communicate their research in a concise and engaging manner. Here are the specific criteria:

1. **Did the oration make the audience want to know more?**
    - Assessing the presenter's ability to generate curiosity and interest among the audience about the research topic.
2. **Was the presenter careful not to trivialize or generalize the research?**
    - Evaluating whether the presenter avoided oversimplifying or making overly broad statements about the research, ensuring a nuanced and accurate representation.
3. **Did the presenter convey enthusiasm for the research?**
    - Observing whether the presenter effectively communicated passion and excitement for their research, creating a positive and engaging impression.
4. **Did the presenter capture and maintain the audience's attention?**
    - Assessing the presenter's ability to attract and retain the audience's focus throughout the presentation.
5. **Did the speaker have sufficient stage presence, eye contact, and vocal range; maintain a steady pace; and have a confident stance?**
    - Evaluating the speaker's overall performance, including physical presence, eye contact, vocal delivery, pacing, and confidence in presenting.
6. **Did the PowerPoint slide enhance the presentation? Was it clear, legible, and concise?**
    - Examining the effectiveness of the visual aid (PowerPoint slide) in complementing and enhancing the spoken presentation. This includes clarity, legibility, and conciseness of the slide content.

These criteria collectively aim to ensure that the 3MT presenter effectively communicates the significance and impact of their research to a non-specialist audience in a compelling and accessible manner.

Engagement and Communication

1. **Did the presentation provide an understanding of the background and significance of the research question being addressed, while explaining terminology and avoiding jargon?**

- Assessing the presenter's ability to convey the context and importance of the research question while ensuring that technical terms are explained without relying on jargon.

2. **Did the presentation clearly describe the impact and/or results of the research, including conclusions and outcomes?**
    - Evaluating the clarity with which the presenter communicates the practical implications, results, and outcomes of the research, including any conclusions drawn from the study.
3. **Did the presentation follow a clear and logical sequence?**
    - Examining the organization and structure of the presentation to ensure that it follows a coherent and logical sequence, facilitating understanding for the audience.
4. **Were the thesis topic, research significance, results/impact, and outcomes communicated in language appropriate to a non-specialist audience?**
    - Assessing the presenter's use of language to effectively convey the thesis topic, the importance of the research, the results or impact, and the overall outcomes in a way that is accessible to individuals outside the specific field of study.
5. **Did the presenter spend adequate time on each element of the presentation? Did the presenter elaborate for too long on one aspect? Was the presentation rushed?**
    - Evaluating the presenter's time management skills, ensuring that each element of the presentation receives sufficient attention without being overly detailed or rushed.

These criteria collectively emphasize the importance of clear communication, accessibility to a non-specialist audience, and effective time management in delivering a compelling and informative 3MT presentation.

Master's Program Requirements

Advisor Assignments and Selection Process

New graduate students in MS program usually will be joining with the thesis advisor determined. First-year students are expected to register for the core courses and may need to add one additional class to their schedule to maintain full-time status. During this time, it is the student's responsibility to discuss the classes with their research advisor.

Deficiency Course Requirements

Depending on the background of the student, it is best to discuss with the Graduate Chair and Research advisor for deficiency course before taking core courses to ensure success in the core courses.

Core Course Requirements

Core courses are required to be taken by all students studying for an MS in chemical and biomolecular engineering. All core courses will be offered every academic year. Eligible students must enroll in the core courses the first time they are offered. The core courses are:

1. CHME 845 Advanced Chemical Engineering Kinetics
2. CHME 835 Transport Phenomena I
3. CHME 825 Theoretical and Applied Thermodynamics for Chemical Engineers
4. CHME 815 Advanced Chemical Engineering Analysis

Specialization Course Requirements

To retain full graduate standing, a student enrolled in the graduate Chemical and Biomolecular Engineering program must secure a minimum cumulative grade average of B in the program's core courses, with only one C course grade permitted. One course grade below C in any one of the core courses shall automatically require that the student retake said course. More than one grades below C in core curriculum courses shall be deemed sufficient reason for dismissal from the graduate program. In addition to the grade requirements stated here, all M.S. students must secure a cumulative grade point average of 3.0 or higher.

Seminar Requirements

Attendance at all chemical engineering department seminars is required for all chemical engineering graduate students, starting their third semester, and is strongly encouraged for first-year graduate students. Starting on the third semester, students must register for the one-credit seminar series activity, and only one absence will be allowed to receive full credit i.e., student attendance will be recorded. At the discretion of the instructor in charge of the seminar series, students may be asked to either orally present at the end of the semester a summary of what they learned from some or all of the departmental seminars, or to write a concise summary of each seminar. The faculty member in charge of the seminar program for the year will circulate a list of the seminars at the beginning of the semester.

Time to Complete a Master's Degree

A master's degree student is expected to complete all degree requirements within five years of their first term of admission to the master's degree program, unless the student is enrolled in a program with a different time limit that has been approved by the Office of Graduate Studies. Graduate courses taken prior to the start of the master's degree program and not counted toward a previously awarded graduate degree may be included on the student's Memorandum of Courses, provided the previous courses were taken within 10 years at the time of degree completion.

Implications for Students

- Current students who started before Fall 2021 semester may finish their master's degree program under the old policy of a 10-year time limit.
- New students who start on or after Fall 2021 semester are subject to the new five-year time limit.
- Graduate students who encounter personal obstacles that require them to pause their academic studies may request Academic Leave. An academic leave may be granted for a degree-seeking graduate student who is in good standing and has completed at least one semester of prior graduate enrollment at UNL. An academic leave may be requested for illness or injury; to provide care or assistance for immediate family and/or dependents; to meet military service obligations; or for other personal reasons.

Alternatively, students in their final stages of degree completion who need an extra semester should not request an academic leave. Instead, students may request an extension of their degree program. An extension request must include a plan and timeline for degree completion and is limited to two terms (fall, spring or summer term). Extension requests must be approved by the student's advisor(s), the Graduate Program Chair, and the Dean for Graduate Studies. The extension request form is located at Steps to Degree Completion

Constructing a Memorandum of Courses

The Memorandum of Courses must be submitted to the Office of Graduate Studies before the student has completed more than one-half of the prescribed program. Prior to submission, the Memorandum of Courses must be approved by the student's advisor, the major departmental or area Graduate committee Chair, and the minor department Graduate Committee Chair (if applicable). It is the student's responsibility to secure the proper approvals and to submit to the Office of Graduate Studies. Final review and approval of the Memorandum of Courses is made by the Dean for Graduate Studies. A student may **NOT** file a Memorandum of Courses and graduate in the same semester or summer term.

More information can be found in the Graduate Catalog.

Advising Options

Effective August 23, 2021, students may pursue a master's degree and major under Option A or Option B. The new options detailed below will replace the current Options I, II, and III.

New Master's Degree Options

Option A	Option B
• Thesis required • Minimum of 30 credit hours (programs may set higher credit hour requirement), including 6 to 10 credit hours of thesis • At least one-half of the credit hours required for the degree, including thesis, must be in the major • At least 8 credit hours, excluding thesis, must be graduate-only courses • May include a minor of at least 9 credit hours selected from and approved by the minor department	• Thesis not required • Minimum of 30 credit hours (programs may set higher credit hour requirement) • At least one-half of the credit hours required for the degree must be in the major • At least 15 credit hours must be graduate-only courses • May include a minor of at least 9 credit hours selected from and approved by the minor department

Option A

- Preliminary Exam
    - The requirement, expectation, format, and timeline of the preliminary exam will be as same as PhD QE as mentioned earlier.
- Master's Thesis
    - Formation of Thesis Committee – Graduate students selecting the thesis option (Option A) have the responsibility to form a Thesis Committee with the approval and assistance of the advisor, and approval of the graduate chair. This committee will consist of the following:
        - At least two (2) members from the degree program and one (1) from the minor department (if applicable)
        - If no minor is chosen, the committee should consist of three (3) member from the degree program.
        - All professors on the committee must either be a member of their department's Graduate Faculty, or a Graduate Faculty Associate, approved to perform specified Graduate duties.
    - Preparation and Approval – The master's thesis and abstract in preliminary form must be approved by the adviser prior to apply for the final oral examination or for its waiver (at least four weeks prior to the examination). An electronic copy of the thesis and abstract in preliminary form must be submitted to the Office of

Graduate Studies for approval at least two weeks (on week in summer) prior to the final oral examination. This copy will be reviewed and the student notified of any changes to be made. The guidelines for thesis preparation and submission deadlines can be reviewed on OGS's Milestone website.

- Thesis Defense (Final Oral Examination) - Submit the Final Examination Report at least four weeks (three weeks in summer) prior to the date of the oral exam, or by the dates shown on the Office of Graduate Studies Milestone website. Complete Parts 1 through 5 – except signatures in Part 4, and ignore Part 5 if non-thesis.
- Finalizing, Uploading, and Depositing the Thesis – Once the student has passed their final oral defense, the student should make any advised edits to their thesis as required by their advisor or committee and obtain all necessary signatures on the Final Examination Report. Review the Finalize Thesis and Deposit directions as outlined by the Office of Graduate Studies.

Option B

- The Master's degree under Option B does not necessitate the completion of a thesis. This option is particularly well-suited for individuals seeking a master's degree that imparts practical or professional skills for specific career paths. Under Option B, students are obligated to accumulate a minimum of 30 credit hours.
- A crucial requirement is that at least one-half of the credit hours essential for the degree must be in the major field of study. The remaining coursework may encompass supporting courses and could potentially constitute a minor, which must consist of at least 9 credit hours. The selection of minor courses should be made from and approved by the department offering the minor.
- Furthermore, a minimum of 15 credit hours must be obtained through courses exclusively available to graduate students, denoted by 900 level or 800 level courses that lack counterparts at the 400 level or lower. This stipulation ensures that a significant portion of the coursework is at an advanced level, aligning with the standards expected in a master's degree program.
- Final Examination Report - Submit the Final Examination Report by the date shown on the Office of Graduate Studies Milestone website. Complete Parts 1 through 5 – except signatures in Part 4, and ignore Part 5 if non-thesis. For a written comprehensive exam (major and/or minor) and/or Option II paper, the advisor must notify the Office of Graduate Studies by date indicated on the OGS Milestones website for that term.

More information on the Option A and B can be found in the Graduate Catalog.

Student Organization

The Chemical Engineering Graduate Student Association (CHME GSA) serves as the representative body for graduate students within the Chemical Engineering department. Engaging in a range of activities, the GSA actively participates in events such as annual spring and fall picnics, the symposium, safety inspections, and the mentorship program for new graduate students. One of its primary functions is to provide a conduit for graduate students to voice complaints, address problems, or share suggestions with faculty and staff associated with the Chemical Engineering department.

Comprising approximately ten elected members, the GSA holds elections at the onset of each academic year to fill various positions. Regular meetings, convened once or twice a month, offer a platform for members to discuss diverse topics and address concerns raised by graduate students. The effectiveness of the GSA relies on the efficient fulfillment of its positions, ensuring the comprehensive representation of graduate student interests.

Encouraging active participation, the GSA welcomes all students to consider serving as a member at some point during their graduate academic journeyStudents interested in GSA activities are encouraged to reach out to the president and explore the CHME GSA website for further information.

Appendix A

New Domestic Student Check List

- Check in with the department
  - See program handbook for program specific information.
- Contact your advisor
  - Your advisor can provide information about the duties of your assistantship (if you have one) and your program of study, including suggested courses for your first semester.
- Complete immunization requirements
  - You must show proof of two rubeola measles/MMR immunizations or show a positive rubeloa lab result, by uploading to MyRED.
  - For more complete information, see UNL Health Center's website
  - Call your campus Health Center for more information or to make an appointment
    - Lincoln-based students: 402.472.5000
- Submit official academic documents to the Office of Graduate Studies
  - Required documents will be listed on the Checklist in your application portal (http://go.unl.edu/gradappstatus).
  - Official documents should be mailed to the Office of Graduate Studies (100 Seaton Hall (SEH)) or emailed directly to OGS at (graduate@unl.edu) from the institution's Records or Examination office.
- Enroll in classes
  - Lincoln based students: Register for courses using MyRED
- Obtain your student ID card
  - Lincoln-based students:
    - Apply online and upload an acceptable photo to receive a NCard
    - Appointments are required to pick up NCards
    - Students' first card is $20, but any subsequent replacement cards are $15.
    - For more information visit NCARD website
- Purchase a parking permit (if you have a vehicle and wish to park on campus)
  - Lincoln-based students: Visit Parking and Transit Services Student Parking Permit Purchase Guide
  - Omaha based students: Visit Parking Services
- Enroll in or waive student health insurance
  - If you do not have a graduate assistantship:

        - Lincoln-based students:
            - You can choose to enroll in the Student Plan online via MyRED.
    - If you have a graduate assistantship
        - You will automatically be enrolled in student health insurance.
        - To waive this benefit completely:
            - Provide proof of medical insurance coverage and complete the waiver request form every semester within 14 days of beginning your employment.
            - If you are choose to waive coverage, you will need to do so for each campus you're enrolled at. Waive the insurance at UNL and UNO or UNMC.
            - Check your MyRED for any important notices or charges and check your @huskers.unl.edu account for important messages
- Plan to attend welcome and orientation events
    - Department orientation: Most academic departments will provide a time for students to learn about the offices and facilities and meet fellow students, faculty, and staff.
    - College Welcome session: Students will be invited to the College's Graduate Student Orientation shell in Canvas. This is a resource hub for students to review and reference at their leisure. Additionally, the College will host an informal welcome session on a semester basis.
    - Office of Graduate Studies New Graduate Student Welcome: Meet graduate students from other disciplines and learn about various campus and community resources.
- Sign in to your email
    - Official University communication from UNL will be sent to your @huskers.unl.edu email address.
- Review academic integrity principles
    - See the section of this handbook entitled Academic Integrity and Professional Conduct.

Appendix B

New International Student Check List

- Check in with the department
    - Bring your visa, passport, I-20 or DS2019, I-94, social security card (if you already have one), driver's license or state-issued ID (if you already have one).
    - Be prepared to provide your local address and phone number, even if it is only a temporary one.
- Visit the Office of Graduate Studies and the International Student and Scholars Office (ISSO) websites and become familiar with their policies regarding your stay and course of study
    - Office of Graduate Studies
    - International Student and Scholars Office (ISSO)
- Submit official academic documents to the Office of Graduate Studies
    - Required documents will be listed on the Checklist in your application portal (http://go.unl.edu/gradappstatus).
    - Official documents should be mailed to the Office of Graduate Studies (100 Seaton Hall (SEH)) or emailed directly to OGS at (graduate@unl.edu) from the institution's Records or Examination office.
- Check in at the International Students and Scholars Office (ISSO) to maintain legal immigration status.
    - Start the check in process HERE
    - Watch the videos and follow the stated directions
    - You will be contacted by email from ISSO to sign up for a short orientation session.
- Apply for a social security number (SSN)
    - Directions can be found HERE
- English Proficiency Requirements:
    - Check your Letter of Admission from the Office of Graduate Studies to confirm if you are required to sit for the English Language Test (ELT).
        - The English language course hours do not count toward your degree credits
        - Contact the Office of Graduate Studies at 402.471.2875 or graduate@unl.edu if you have additional questions.
- Arrange for a bank account
    - A bank account in the US is required for direct deposit of employment pay.
    - When opening an account, bring a passport and an initial sum of money to deposit.

    - Bring a voided check or direct deposit form to the department for employment paperwork
- Contact your advisor
    - Your advisor can provide information about the duties of your assistantship (if you have one) and your program of study, including suggested courses for your first semester.
- Complete immunization requirements
    - You must show proof of two rubeola measles/MMR immunizations or show a positive rubeloa lab result, by uploading to MyRED.
    - For more complete information, see UNL Health Center.
    - Call your campus Health Center for more information or to make an appointment
        - Lincoln-based students: 402.472.5000
- Enroll in classes
    - Enroll for courses using MyRED
- Obtain your student ID card
    - Lincoln-based students:
        - Apply online and upload an acceptable photo to receive a NCard
        - Appointments are required to pick up NCards
        - Students' first card is $20, but any subsequent replacement cards are $15.
        - For more information visit NCARD website
- Purchase a parking permit (if you have a vehicle and wish to park on campus)
    - Lincoln-based students: Visit Parking and Transit Services Student Parking Permit Purchase Guide
- F-1 and J-1 students are automatically enrolled in student health insurance. To enroll in or waive student health insurance
    - If you do not have a graduate assistantship:
        - Lincoln-based students:
            - You can choose to enroll in the Student Plan online via MyRED.
    - If you have a graduate assistantship
        - You will automatically be enrolled in student health insurance.
        - To waive this benefit completely:
            - Provide proof of medical insurance coverage and complete the waiver request form every semester within 14 days of beginning your employment.

        - If you are choose to waive coverage, you will need to do so for each campus you're enrolled at. Waive the insurance at UNL.
        - Check your MyRED for any important notices or charges and check your @huskers.unl.edu accounts for important messages
- Plan to attend welcome and orientation events
    - Department orientation: Most academic departments will provide a time for students to learn about the offices and facilities and meet fellow students, faculty, and staff.
    - College Welcome session: Students will be invited to the College's Graduate Student Orientation shell in Canvas. This is a resource hub for students to review and reference at their leisure. Additionally, the College will host an informal welcome session on a semester basis.
    - Office of Graduate Studies New Graduate Student Welcome: Meet graduate students from other disciplines and learn about various campus and community resources.
- Sign in to your email
    - Lincoln and Omaha based students:
        - Official University communication from UNL will be sent to your @huskers.unl.edu email address.
- Review academic integrity principles
    - See the section of this handbook entitled Academic Integrity and Professional Conduct.

Appendix C

Roadmap for M.S. Students

	Gain admission to the Program.
	Meet with your advisor to plan your first semester schedule.
	If you have admission deficiencies, work with your advisor to develop a plan to remove them.
	Review the Office of Graduate Studies Milestones website and develop a plan: https://www.unl.edu/gradstudies/academics/degrees/masters
	File the Memorandum of Courses upon recommendation of the major and minor department and approval of the Dean of Graduate Studies Memorandum of Courses must be filed before grades (letter grades, no reports, or incompletes) have been received in more than half of the program courses or by end of 3rd semester. **You cannot apply for graduation in the same semester as you file the Memorandum of Courses.**
	Complete the required coursework and, for Option I or A, your thesis
	File an Application for Graduation early in the semester in which you expect to graduate. The online Graduation Application form will be available to you in MyRED after Graduate Studies has received and processed your Memorandum of Courses. Due dates for Graduation Applications can be found here: https://registrar.unl.edu/student/commencement/application/

	Pass the written Comprehensive Examination. For Option 1 or A students, the thesis serves as the written Comprehensive Exam, and an oral defense of the thesis is also required.
	File the Final Examination Report **at least four weeks (three weeks in summer) prior to the date of the oral exam**, or by the dates shown on the Office of Graduate Studies Milestone website.
	Schedule and complete the Oral Comprehensive Exam, or for Option 1 or A, an oral defense of the master's thesis.
	Resolve any incomplete grades.
	Finalize thesis and submit to the Office of Graduate Studies and upload to the Digital Commons. Review OGS Milestone website for completion.

Appendix D

Roadmap for Ph.D. Students

	Gain admission to the Program.
	Meet with your advisor to plan your first semester schedule.
	If you have admission deficiencies, work with your advisor to develop a plan to remove them.
	Review the Office of Graduate Studies Milestones website and develop a plan: https://www.unl.edu/gradstudies/academics/program-steps/doctoral-degree-steps-to-completion
	Take and pass the Qualifying Exam (if program requires, see program specific requirements)
	Form your Supervisory Committee and file the Appointment of Supervisory Committee form with the Office of Graduate Studies prior to the completion of 45 credit hours.
	File the Program of Studies of upon recommendation of the major and minor department and approval of the Dean of Graduate Studies The Program of Studies must be submitted within the same term (semester or summer) as approval of the Supervisory Committee.

	Pass the Comprehensive Exam when coursework has been substantially completed. Submit the Application for Admission to Candidacy form, upon successful completion of the Comprehensive Exam.
	Complete research, write, and prepare your Dissertation.
	File an Application for Graduation early in the semester in which you expect to graduate. The online Graduation Application form will be available to you in MyRED after Graduate Studies has received and processed your Program of Studies. Submit your completed Hooding Participation form to the Office of Graduate Studies within one month of the beginning of the term you plan to graduate. Due dates for Graduation Applications can be found on the Registrar's Office website: https://registrar.unl.edu/student/commencement/application/
	Apply Final Oral Examination.
	Upon successful defense of your Dissertation, submit the Report of Completion to Graduate Studies.
	Finalize any revisions and deposit approved version of Dissertation as a PDF to the UNL Digital Common. Review OGS Milestones website for completion.