Polymer Science and Engineering (PSE) Graduate Student Handbook (AY 2026–2027)

Polymer Science and Engineering Program
Graduate Student Handbook
2026–2027
P.C. Rossin College of Engineering and Applied Science, Lehigh University

Welcome from the Program Director

Dear students,

I would like to welcome you to the Polymer Science and Engineering program at Lehigh University! Our program is an **online interdisciplinary graduate program** within the P.C. Rossin College of Engineering and Applied Science. It was **established in 1975** and has evolved over the years to keep pace with changes in the polymer field while upholding the same quality and rigor that characterizes all of Lehigh's programs. The PSE program brings together faculty from multiple departments (chemical and biomolecular engineering, materials science and engineering, mechanical engineering and mechanics, chemistry, and physics) to offer students a diverse and comprehensive curriculum.

Our goal is to prepare and equip you with the knowledge and skills to address contemporary challenges and to become leaders in the dynamic polymer science field. This handbook has been carefully prepared to help you navigate the program's guidelines and curriculum. Please note that this document **supplements** (and does not supersede) the college-wide graduate student handbook. You can refer to the College of Engineering and Applied Science Graduate Student Handbook for broader policies and information (available on the Rossin College website).

On behalf of the faculty and staff, I welcome you to Lehigh PSE and trust that you will have a successful and rewarding experience in our program.

Luciana Arronche
Program Director, Polymer Science and Engineering Program
P.C. Rossin College of Engineering and Applied Science

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1.0 Procedures for New Graduate Students

1.1 Check in and Starting Dates

After being accepted into the PSE program, students are expected to promptly set up and access their Lehigh online systems, including **Banner** (the student information system) and **CourseSite** (Lehigh's learning management system), using the login credentials provided by the university. These systems will be used for course registration, online class access, and other essential functions. If students encounter any issues with account access or systems, they should contact the PSE Graduate Coordinator or the Program Director for assistance.

Important dates, such as term starting dates, can be found on the **Lehigh Academic Calendar**.

Practical Checklist for Newly Admitted Students

1. Once you have accepted our offer of admission, please establish your Lehigh credentials through the Application Portal using your Lehigh Identification Number (LIN).
2. After establishing your Lehigh credentials, you will have access to your student portal.
3. Visit go.lehigh.edu/gradportal and log in using your new Lehigh credentials.

Note: Because the PSE program is delivered fully online, there is no on-campus check-in requirement. International students participating from abroad are not required to physically check in or obtain a visa since coursework can be completed remotely. (If an international student plans to be in residence at Lehigh for any period, they must comply with any applicable Office of International Students and Scholars procedures, but this is generally not expected for the online PSE program.)

1.2 Required Orientations

Lehigh University offers orientation resources for new graduate students each semester. We encourage all incoming PSE students to take advantage of any **online orientation modules or virtual information sessions** provided by the University's Graduate Life Office. These orientations cover important topics such as research integrity, library resources, and university policies. However, because the PSE program is conducted remotely, **there are no mandatory in-person orientation sessions** specific to PSE. If any orientation session is made available online, students are encouraged to participate to become familiar with university services and expectations.

Instructional guides, such as the following, are provided by the Office of the Registrar:

- How to Browse Classes by Semester
- How to use the Plan Ahead
- How to Register for Classes
- How to search for attributes/distribution requirements

- How to change the number of credits in a variable credit course

It is also strongly recommended to explore Lehigh's **Library & Technology Resources (LTS) website**. There you will have access to Lehigh's virtual library, technology helpdesk, campus wide technology classes and much more.

1.3 Diagnostic Testing

The Polymer Science and Engineering Certificate and Master's online programs **do not require any diagnostic placement exam** prior to beginning coursework. PSE students can directly start the graduate curriculum. Students who do not have a strong background in polymers or whose undergraduate degree is in a different field should consult with their advisor or the program director when selecting initial courses (see Section 1.4 below) to ensure any necessary foundational knowledge is covered. In some cases, students from non-polymers backgrounds may be advised to take certain introductory courses (for instance, the core introductory polymer courses) early in their program to build a suitable foundation, but no formal diagnostic exam is given.

1.4 Course Selection and Registration

Course selection in the PSE program should be done in consultation with an academic or research advisor (if the student has a research advisor). Together, an appropriate plan of coursework will be developed, tailored to the student's background and goals. If the student has a primary research advisor (for those doing a thesis), the advisor will discuss and approve the coursework and thesis plans. Students without a research advisor must reach out to the Program Director for guidance on course planning.

Each semester, students should review the courses offered for the upcoming term (course offerings are available via the online course schedule) and then register through the **Banner** system during the registration period.

All course registrations should align with the approved program plan. Students are responsible for meeting any prerequisites or obtaining instructor permission if required.

Current full-time students must pre-register each semester during the announced pre-registration period. Registration deadlines are typically August 1st for the Fall semester and the first business day in January for the Spring semester. Failure to pre-register will incur a late fee from the Registrar, for which the student is responsible. First-time students do not have to register within the pre-registration period and will not be subject to the fine. This exemption only applies to the first semester for a full-time graduate student at Lehigh.

Current PSE Course Offerings: The list of courses in the PSE program is maintained on the program website. The PSE curriculum draws from specialized polymer courses as well as relevant electives from other engineering and science departments. **The current PSE course list includes:**

- *Core Courses (required for MS):*

- **PSE 492 – Introduction to Polymer Science**
- **PSE 493 – Physical Polymer Science**
- **PSE 494 – Polymer Thermodynamics** (recommended core thermodynamics course; an equivalent 400-level thermodynamics course may be substituted with approval)[1][2].

- *Elective Courses (examples include but are not limited to)*[2]:

- **PSE 409 – Composite Materials**
- **PSE 419 – Polymer Sustainability & Recycling**
- **PSE 426 – Biomimetic and Bio-enabled Materials**
- **PSE 482 – Mechanical Behavior of Polymers**
- **PSE 483 – Emulsion Polymers**
- **PSE 485 – Polymer Blends**
- **PSE 486 – Polymer Nanocomposites**
- **PSE 487 – Adhesion and Adhesives Technology**
- **PSE 488 – Polymer Characterization**
- **PSE 489 – Polymer Coatings**
- **ME 385/485 – Polymer Product Manufacturing**
- **MAT 497 – Biopolymers** (Materials Science course, counts as polymer elective)
- **CHE 398/498 – Innovations in Biomedicine** (Chemical Engineering course, counts as polymer elective)

Notes: All courses in the PSE program carry 3 credits. Students in the PSE certificate or degree programs may choose electives from the above list or other approved polymer-related courses. If a student finds a relevant polymer science course that is not listed in the **PSE catalog** (for example, a new special topics course or an offering in another department), they may request approval from the Program Director to count it toward their program requirements. Course descriptions for PSE courses can be found in the Lehigh University Catalog[2], and descriptions for MAT, ME, or CHE courses can be found in the respective department's catalog pages (MSE catalog, ME catalog, CHE catalog)[2]. Students should always verify when courses are offered (Fall, Spring or Summer term) and plan accordingly.

1.5 Accessing Online Courses

Remote students will participate in courses delivered online. To access courses you are enrolled in, you must log in to **CourseSite** using your Lehigh credentials. **CourseSite** is Lehigh University's learning management system, and instructors use this platform to provide all the materials and resources necessary for course completion.

The course for which you are registered should appear on your **CourseSite** dashboard. If the course is not visible on the dashboard by the first day of classes, you are expected to contact the course instructor directly.

1.6 Seminars

Engagement with current research and professional development activities is an important part of graduate education. Although PSE is an online program, by working in partnership with other departments, recorded seminars are made available online through the Course Site.

These **Department/Program Research Seminars**, are technical seminars often hosted by departments such as Materials Science & Engineering, Chemical Engineering, Mechanical Engineering or Biological Engineering, featuring guest speakers or faculty presenting research in polymers. PSE students are **encouraged to watch the recorded seminars**; however, it is not mandatory. Keeping abreast of developments outside one's immediate coursework helps broaden knowledge. This enriches the educational experience and ensures that graduates are aware of current advances in polymer science and engineering.

Documentation: PSE does not have a formal one-credit seminar course enrollment requirement; instead, seminar participation is handled more informally.

1.7 Graduate Student Representation to Program Faculty

The Polymer Science and Engineering program is interdisciplinary and does not have a single traditional department faculty meeting like a standard academic department. Therefore, there is **no formal student representative position for PSE program faculty meetings** (unlike some departments that invite a grad student rep to faculty meetings). However, PSE students are encouraged to voice any concerns, suggestions, or ideas about the program to the Program Director or Graduate Coordinator at any time. Because the PSE program spans multiple departments, issues can also be raised through allied departments or the graduate student representatives of those departments.

2.0 Certificate and MS Academic Requirements

The PSE graduate program offers two graduate credentials: a **Graduate Certificate in Polymer Science and Engineering** and a **Master's degree in Polymer Science and Engineering**. There are two pathways to earn the master's degree – a coursework-only option and a thesis option – which are detailed below. This section outlines the academic requirements for each program. (Note: The PSE program is primarily a master's-level program; for doctoral studies related to polymer science, see Section 3.0.)

2.1 Certificate Degree Requirements

The **Graduate Certificate in Polymer Science and Engineering** is a 12-credit program designed for working professionals or graduate students who seek to enhance their knowledge in polymer science without committing to a full degree. Key requirements of the certificate program are:

- **Total Credits:** 12 credit hours of graduate coursework[3]. This typically equates to four courses (3 credits each). Certificate students may select any graduate-level polymer courses or related electives listed in the PSE program (see Section 1.4 for examples of courses). It is recommended that students choose courses that provide a breadth of knowledge in polymer chemistry, polymer physics, and engineering topics. For instance, a certificate student might choose to take the two fundamental polymer courses (PSE 492 and PSE 493) and two additional specialized courses of interest. However, this is not mandated.

- **Core Courses: No specific core courses are required** for the certificate[3]. Students have flexibility to choose any four courses from the approved PSE course offerings.

- **Academic Performance:** Students must maintain good academic standing. No course in which a grade below C- is earned can count toward the certificate. The university generally requires a minimum cumulative GPA of 3.0 in certificate courses for the certificate to be awarded.

- **Program Completion:** All certificate coursework must be completed within a 4-year period (as per graduate rules). The certificate can be finished in as little as two semesters if two courses are taken per semester, or spread out for part-time students. Students should apply for graduation (certificate completion) in the term when they will finish the fourth course (see Section 2.3 for graduation application procedures).

The certificate program is offered in a **completely online format**. All courses for the certificate are delivered via distance learning, enabling students to complete the credential remotely[3]. If a student later decides to pursue the MS degree, up to 12 credits earned in the PSE certificate may be applied toward the PSE master's (with approval), as long as the courses fit the degree requirements and the student achieves admission to the MS program.

Admission Requirements for Certificate: Admission to the certificate program requires a B.S. degree in a relevant field (chemistry, physics, engineering) and a GPA of 2.8 or above, with no GRE required[3]. (These are the same standards as for the MS program admission.)

2.2 MS Course Requirements

The **Master of Science in Polymer Science and Engineering** requires a minimum of **30 credit hours** of graduate work. Students may fulfill this requirement through coursework alone or through a combination of coursework and research, depending on whether they choose the non-thesis or thesis option. The program's design is flexible to accommodate full-time students as well as part-time students (many of whom might be working professionals). Below is an overview of the credit and course requirements:

- **Total Credits:** 30 credits for the master's degree. This typically involves 10 courses if doing coursework only, or a mix of courses and thesis research credits if doing a thesis.
- **Program Timeline:** A full-time student can complete the MS in approximately **1.5 to 2 years**, while part-time students (taking perhaps 1-2 courses per semester) might take around 3 to 4 years. All master's degree requirements must be finished within **6 years** of starting the program, per university policy.
- **Grade Requirements:** No graduate credit is given for any course in which the grade is below C-. Additionally, a student will be ineligible for the master's degree if they accumulate more than four grades below B- during their MS program. An overall GPA of **3.0 or higher** is required to qualify for graduation with the MS degree (this is a minimum university standard for graduate degrees).
- **Core Coursework:** All PSE MS students (both thesis and non-thesis) are required to complete **three core courses (totaling 9 credits)** as part of the 30 credits. These core courses ensure that every graduate has a fundamental understanding of polymer science and engineering principles. The core courses are:
    - **PSE 492 – Introduction to Polymer Science** (3 credits) – Introduction to polymers, covering basic concepts of polymer chemistry and engineering[2].
    - **PSE 493 – Physical Polymer Science** (3 credits) – Covers polymer physics, structure-property relationships, etc.[2].
    - **PSE 494 – Polymer Thermodynamics** (3 credits) – In-depth study of thermodynamics as applied to polymer systems[2]. (*Note:* PSE 494 is the recommended thermodynamics course. Alternatively, **any other 400-level graduate thermodynamics course** may be taken to satisfy the thermodynamics core, with approval[1]. For example, MAT 496 (Polymer Thermodynamics) has been recommended in the past[4], and it aligns with PSE 494 content.

- **Elective Coursework:** Beyond the 9 credits of core courses, MS students must complete **21 additional credits** of electives (if doing the coursework-only path) or a combination of electives and thesis credits (if doing thesis). The electives should be chosen as follows:

    - At least **18 credits** of the total 30 must be at the **400-level** (graduate-level courses)[4]. This means students can include up to 12 credits at the 300-level (senior undergraduate level) in their program. The two core courses PSE 492 and 493 are cross-listed with 300-level designations (MAT 392/MAT 393) and thus count toward that 300-level allowance. Students should generally plan to take predominantly 400-level courses, especially after completing the core.
    - A significant portion of the electives should be **polymer-related courses**. While there is no single fixed number of "polymer major" credits for all students, the spirit of the program is that the majority of courses focus on polymers. Typically, at least **15 or more credits** of the coursework would be polymer-specific courses (including the core and additional polymer electives). In practice, most PSE students take well over half of their credits in polymer courses. If a student wants to take some technical electives outside of polymer science (e.g., a materials characterization course, or a general chemical engineering course), they may do so – up to one graduate engineering/science elective (3 credits) outside the polymer list can be included[4]. Any course outside of the obvious polymer list should be approved by the Program Director to count toward the degree. (For example, a student might want to take a bioengineering course or an advanced math course relevant to their career – with approval, one such course can typically count.)
    - **Limit on 300-level credits:** As noted, including the core, no more than 12 credits at the 300-level may be counted[4]. In practice, after taking PSE 492 and 493 (if they are cross-listed as 300-level), a student could take at most two additional 3-credit courses at the 300-level (if desired, such as an undergrad course in a related field) and still count them. The rest should be 400-level.

- **Degree Options:** There are **two options** to complete the 30-credit MS degree[1]:

    - **Coursework-Only Option** – 30 credits of coursework with no thesis.
    - **Coursework + Thesis Option** – 24 credits of coursework + 6 credits of thesis research, including the completion of a research thesis.

Each option has specific requirements, outlined in 2.2.1 and 2.2.2 below. Students must decide which path to pursue. Many part-time students who are working professionals choose the **coursework-only** path to maximize course content and avoid the time commitment of a thesis. Students who are interested in research or possibly pursuing a Ph.D. later often choose the **thesis** path to gain research experience. Students can enter the program intending one option and later switch if needed (for example, start as coursework-only but later decide to do a thesis, or vice versa), but this should be done by consulting with the Program Director early, so that course planning and any necessary research arrangements can be made.

2.2.1 MS Coursework-Only Option

Students who choose the **coursework-only option** must complete a total of **30 credits of coursework** (typically 10 courses) and **no thesis**. This option leads to the award of a coursework-only **Master of Science (M.S.)** degree in Polymer Science and Engineering. The requirements for this option are summarized as follows:

- **Core Courses:** 3 core courses (9 credits) as listed above (PSE 492, PSE 493, PSE 494 or equivalent) must be completed by all students.

- **Elective Courses: 21 credits** of elective courses must be completed. These can be chosen from the list of polymer science and engineering courses or related electives (Section 1.4). When selecting electives, students following the coursework-only path should ensure:

- At least **18 of the 21 elective credits** are at the 400-level (to satisfy the graduate credit requirement)[4].
- A substantial number of these credits are polymer-focused (typically at least 15 credits of polymer courses at the 400-level is expected, which effectively means most electives will be PSE or polymer-related courses).
- Up to **3 credits** (one course) of the electives may be a graduate engineering/science elective outside of polymer topics, if desired[4], as long as the overall requirements above are met.

- **Optional Engineering Project:** Coursework-only students have the *option* to include a hands-on project experience by enrolling in an **Engineering Project course** (e.g., MAT 460) for elective credit. This is not required, but if a student wishes to do a project:

    - They can take **PSE 460 – Engineering Project** for 3 (up to 6) credits as part of their 21 elective credits. PSE 460 involves an in-depth study of a materials engineering problem and culminates in a written report and presentation. The topic could be polymer-focused to count as a polymer elective.
    - The student should work with a faculty advisor (often one of the polymer faculty) to define the project. It can be a research or design project relevant to polymers, possibly even a project at the student's workplace guided by a Lehigh faculty member.
    - If PSE 460 (or an equivalent project course) is taken, those credits count toward the **400-level polymer elective requirements** (assuming the project is polymer-related). This can enrich the educational experience with practical research without committing to a full thesis.

Summary of Coursework Distribution (Coursework only option): A typical plan for a thesis MS student might be *3 core courses (9 credits) + 7 elective courses (21 credits) = 30 credits **OR** 3 core courses (9 credits) + 5 to **6** elective courses (15 to **18** credits) + 3 to **6** engineering project credits = 30 credits*. This satisfies all requirements. The student would graduate with an **M.S. in Polymer Science and Engineering**.

2.2.2 MS Coursework + Thesis Option

Students who choose the **thesis option** must complete at least **24 credits of coursework** and **6 credits of thesis research**, totaling the required 30 credits. This option leads to the award of a research-based **Master of Science (M.S.)** degree in Polymer Science and Engineering. Requirements for the thesis option include:

- **Core Courses:** 3 core courses (9 credits) are required, same as for all MS students (PSE 492, 493, 494 or approved thermodynamics).
- **Coursework Electives: 15 credits** of elective coursework must be completed (to reach 24 coursework credits total). These electives should satisfy the same criteria as described for the coursework-only track:
- The **majority of electives should be polymer-related** courses. In practice, for thesis students, since they are doing 6 credits of thesis, they might take slightly fewer electives, but still at least 9 of these elective credits should be polymer-focused 400-level courses.
- At least **18 credits total at the 400-level** are still required in the program. With 6 credits of thesis (which are 400-level research credits) plus at least 9 credits of 400-level polymer courses, and possibly more, thesis students will meet this. They just need to be mindful if taking any 300-level courses.
- They can include up to one outside elective (3 credits) as discussed earlier, if desired, though many thesis students focus all electives on polymer courses.
- **Thesis Research: 6 credits of Thesis Research** must be completed. In practice, this is often achieved by enrolling in a thesis course (**PSE 490 – Thesis**) for variable credits over multiple semesters.
- Typically, thesis credits are spread over the duration of the research project. For example, a student might take 3 credits of thesis in one semester and 3 in the next, or all 6 in one term, depending on research timing and funding.
- The **total thesis credits must sum to 6**. These thesis credits count toward the requirement of having 18 credits at the 400-level (since research credits are graduate-level).
- **Thesis Document:** The student must conduct an independent research project under the supervision of a faculty advisor (who is a member of the Polymer faculty group) and produce a written **master's thesis**. The thesis should address a significant problem in polymer science or engineering, demonstrate mastery of research techniques, and ideally contribute new knowledge or insight. The topic and scope of the thesis project

are determined in consultation with the research advisor and must be approved by the Program Director.

- **Thesis Approval:** The completed thesis manuscript is submitted to a committee of at least two faculty (often the advisor and one other reader from the polymer faculty or related departments) for evaluation. A **thesis defense (oral presentation)** may be required at the discretion of the program – in many cases, a public presentation or seminar is. The thesis must be approved by the faculty committee and signed by the thesis advisor and the PSE Program[6].

- **Special Consideration – Confidential Research:** If a thesis project is done in collaboration with industry and involves confidential data (e.g. subject to an NDA), the student must arrange for a Non-Disclosure Agreement and ensure that a suitable thesis can still be submitted to the university. In cases where the research is proprietary and cannot be published or even adequately reported in a thesis, the program may advise the student to **opt for an engineering project and the coursework-only degree instead of a thesis**. The reasoning is that a thesis at Lehigh becomes a public document (with an option for temporary embargo). If a student's work cannot be disclosed, they might be better served by writing an internal company report (for their own purposes) and completing the degree via coursework. Students should discuss these situations with the Program Director before committing to the thesis route.

Summary of Coursework Distribution (Thesis option): A typical plan for a thesis MS student might be: 3 core courses (9 credits) + 5 elective courses (15 credits) + 6 thesis credits = 30 credits. This satisfies all requirements. The student would graduate with an **M.S. in Polymer Science and Engineering**.

2.2.2.1 Thesis Project Requirements

A successful thesis project in the PSE program involves the following steps and requirements:

- **Thesis Advisor:** The student must have a research advisor who is a faculty member affiliated with the Polymer Science and Engineering program. The advisor will guide the research, from defining the scope to methodology and analysis. The advisor also oversees the thesis write-up and determines when it is ready for defense/submission.

- **Thesis Proposal:** Although the PSE MS program does not require a formal thesis proposal defense (common in Ph.D. programs), it is recommended that the student prepare a short thesis proposal or plan early on. This ensures the project is well-defined and feasible. The proposal can be a brief document discussed with the advisor and approved by the Program Director.

- **Research Execution:** The student conducts the research, which may involve experimental laboratory work, computational modeling, or theoretical analysis (or a combination). The research might be done at Lehigh's labs (if the student is local or can spend time on campus) or can be done remotely, for example, at the student's place of

employment (with faculty oversight). The program allows for **remote research for credit** as part of the MS degree[5], so a student could perform experiments in an industrial lab or another academic lab under appropriate arrangements. In all cases, regular communication with the faculty advisor is critical.

- **Thesis Writing:** The student must write a thesis document following Lehigh University's guidelines for graduate theses. This includes proper formatting, and sections such as abstract, introduction, literature review, methods, results, discussion, conclusions, and references. The writing should demonstrate graduate-level scholarship and clarity.

- **Review and Approval:** Once the advisor is satisfied with the thesis draft, at least one additional faculty member (or possibly a small committee of readers) will review it. The **Program Director** must also approve and sign the thesis as a program requirement[6].

- **Thesis Presentation/Defense:** The student will present their findings, typically as a seminar or a defense meeting. For PSE MS, this presentation is usually less formal than a PhD defense (for example, presenting to peers and faculty during a seminar session). The advisor and any reader(s) may ask questions and require clarifications or edits to the thesis.

- **Confidentiality and Publication:** If the thesis work is done in industry and contains proprietary information, the student and advisor should arrange an appropriate strategy: possibly drafting two versions (one with confidential details omitted for university submission) or applying for an embargo (where the thesis is not publicly released for a set time). However, as noted above, if the majority of the content must remain confidential and no publishable document can result, the **coursework-only path is recommended instead**. Students should make this decision early to avoid issues at graduation time.

- **Submission:** The final, approved thesis must be submitted electronically to the university repository (via the **ETD Administrator website**) by the deadlines for the intended graduation date (see Section 2.3). Additionally, an original signature page (with signatures of the advisor and program director) must be submitted to the Registrar, and the student must pay the required thesis microfilming (archiving) fee and submit the receipt (or as updated by Graduate Affairs – currently an Open Access form and ProQuest fee, see Section 2.3).

Completing a thesis is a significant undertaking, but it is highly rewarding. It provides deeper expertise in a particular polymer topic, develops research and problem-solving skills, and can open doors to R&D careers or further doctoral study.

2.3 Graduation Requirements for MS Students

In the semester in which a student intends to graduate (for either the MS or the certificate), there are several important steps and requirements to complete. The following is a checklist and explanation of the **graduation procedures** for master's students in the PSE program:

- **Apply for Graduation:** Every candidate for a graduate degree (or certificate) must submit an official **Graduation Application** via the online system (Banner). This is also sometimes referred to as the "Application for Degree." It notifies the Registrar and Program of your intent to graduate in a given term. The application is done through Banner (Student Services > Graduation Application) and must be submitted by the deadline. The **deadlines for submitting the online graduation application are**: **October 1** for Fall semester graduation (degree awarded in January), **February 1** for Spring graduation (May degree), and **July 1** for Summer graduation (degree awarded in September)[7]. (These deadlines are set by the Registrar. Applications submitted after the deadline incur a late fee and may not be accepted if too late.) Be mindful of these dates: for example, if you plan to finish in Spring 2025, you must apply by Feb 1, 2025. The application for graduation is required for both the MS degree and the certificate completion.

- **Program of Study Form (Master's Degree Program form):** Lehigh requires master's students to submit a **Program for Master's Degree** form, which lists all courses taken toward the degree. This form should be completed once you have finalized your course plan, typically at the beginning of the final semester (it can be submitted as early as after completing 15 credits, and no later than the *start* of the last semester). The form must be approved and signed by the Graduate Coordinator (Arastina Barry arb313@lehigh.edu) the Program Director (Luciana Arronche lua224@lehigh.edu), and Shaku Jain-Cocks shj208@lehigh.edu who should be listed the the College Manager 2 on the DocuSign request. It is then submitted to the Registration & Academic Services (RAS) office for processing. This form is essentially a degree audit; it ensures you will have the right credits and courses for graduation. **Important:** If this form is not processed before the end of your last term, it can delay graduation, so do it early.

- **Thesis Submission (for Thesis MS students only):** If you are completing a thesis, there are several additional steps:

- **Complete the Thesis Manuscript:** Incorporate all edits required by your advisor and readers, and get final approval (signatures) from your committee.
    - **Submit Thesis Online:** You must submit the thesis electronically via the ProQuest ETD (Electronic Thesis and Dissertations) submission website. Lehigh uses etdadmin.com for thesis submissions. You will need to create an account, upload your PDF thesis, and provide metadata (title, abstract, etc.). Do this by the **deadline set by the Registrar's Office** for that graduation cycle. These deadlines are usually a few weeks before the degree conferral date – specific dates are published by RAS each term (often around early December for fall, mid-April for spring, and early August for summer).
    - **Submit Supporting Materials:** Along with the electronic thesis, you must submit an **Open Access Agreement form** (or embargo request) signed, and pay the required **microfilming/publishing fee**. The Bursar's Office will give a receipt for the fee (if applicable). These items (signed forms, receipts, and the original

signed signature page from your thesis) must be delivered to the Registrar's Office by the thesis deadline. The current requirement as per RAS is: submit your completed thesis via ETD, the signed approval page, the embargo or open access form, and proof of ProQuest fee payment[7].

- **Finalize Enrollment:** If you have completed all course credits prior to your final term and are just finishing the thesis writing, you should enroll in the appropriate continuation or maintenance of candidacy course (often 1 credit of "Thesis Continuation" such as ENGR 490 or similar, to remain an active student). Discuss with the Graduate Coordinator about the Full-Time Certification form if you're in this situation, so you don't accidentally fall below required credit load for full-time status in your final term.
- **Thesis Completion Confirmation:** After submission, await confirmation that the thesis has been accepted by the university (sometimes the graduate programs office or RAS will confirm all requirements are met). Only *MS students completing a thesis* need to do these thesis steps; coursework-only students can ignore this bullet.

- **Graduate Student Check-Out:** Before leaving Lehigh or completing the program, all graduate students should complete any required check-out procedures. For PSE students who have been entirely online and never used campus facilities, this is minimal. However, if you have any **university property** to return (such as library books, or if you had keys or equipment from a lab during a campus visit), ensure those are returned. The **Graduate Student Check-Out Form** is primarily used by departments to sign off that a student has cleared out of labs, returned keys, etc. For PSE online students, the key items might be returning any borrowed materials and making sure there are no outstanding balances or holds on your account. If you were working in a lab on campus, you will need signatures from Environmental Health & Safety (EHS) and others to certify you left the lab in good order. Coordinate with the home department's Graduate Coordinator for this form, since you would be associated with a home department when working on campus. It is recommended to start the check-out process at least a week before you finish to get all necessary signatures and avoid delays.

- **Final Degree Audit:** The Registration & Academic Services office and the PSE Graduate Coordinator will review your academic record to ensure all degree requirements are met (courses, GPA, etc.)[7]. Be sure that:

  - All your grades are posted (no missing or incomplete grades). Incompletes must be resolved well before graduation.
  - You have met the credit requirements (30 credits for MS, with the right distribution; 12 for certificate).
  - You have an overall GPA ≥ 3.0.
  - If you transferred any credits or took courses outside Lehigh (with permission), those are processed and on record.

- **Commencement Ceremony:** Lehigh holds one commencement ceremony in May each year for all students who graduated in the previous September, January, or the current May. If you are finishing in Summer or Fall and want to “walk” in commencement the following May, or if you finish in May, you will be invited to the ceremony. You should indicate your plans to participate when you fill out the graduation application (there’s a question about attending commencement)[7]. Further details about ordering regalia, etc., will be provided by the University Events office. Note that participating in commencement is optional and purely ceremonial; it does not affect the granting of your degree.

By completing all the steps above, you will ensure a smooth process toward receiving your **Master’s degree or Certificate in Polymer Science and Engineering**. To confirm your specific degree conferral date, please review the **Academic Calendar** and locate the official "**Degree Award Date**" listed for your specific term. Diplomas are mailed to the address you provided in the graduation application, usually a few weeks after the graduation date[7]. Certificate students receive an official certificate document and a notation on their transcript upon completion.

Congratulations in advance on fulfilling the requirements of the program and earning your PSE credential!

3.0 Doctoral Academic Requirements

- *Students may pursue the Ph.D. in Polymer Science & Engineering (PSE) at Lehigh. Every PSE doctoral student selects a home department aligned with their field of study (e.g., Materials Science & Engineering, Chemical & Biomolecular Engineering, Mechanical Engineering & Mechanics, Chemistry, Physics). Students follow the policies and procedures of the home department for all doctoral milestones (TA requirements, qualifying exam format/timing, committee formation rules, residency, candidacy, and completion), with the additional PSE requirement that the Qualifying Exam committee and the Dissertation/Defense committee each include at least one PSE-affiliated faculty member from a department different from the student's home department. PSE core courses are also required.*

3.1 Ph.D. Program Structure (PSE with a Home Department)

- **Degree:** Doctor of Philosophy (Ph.D. in Polymer Science & Engineering).
- **Home department selection:** Upon admission, each student designates a home department that best matches their research field. The home department determines day-to-day academic governance (course numbering, TA assignments, milestone calendars, etc.).
- **Advisor and co-advisors:** The primary advisor must be a PSE-affiliated faculty member and a member of the home department (or hold an eligible appointment to advise Ph.D. students in that department). Co-advising across departments is encouraged where appropriate.
- **Policies followed:** Students follow the home department's rules for:
    - coursework/curriculum and any department-specific core requirements,
    - TA/teaching requirements,
    - qualifying examination timing and format,
    - doctoral committee size/eligibility and official approvals,
    - annual reviews, proposal/general exam, candidacy,
    - residency, time-to-degree limits, and dissertation submission procedures.

- **PSE overlay requirement (committees):** The student's (a) Qualifying Exam committee and (b) Dissertation/Defense committee must each include ≥1 PSE-affiliated faculty member from a department other than the home department. This member helps maintain cross-disciplinary standards and ensures alignment with PSE program objectives.

Rationale: (i) advisors and examiners are familiar with the home department's procedures; (ii) students are evaluated by scholars in the most relevant disciplinary context; (iii) the inherently interdisciplinary nature of PSE is reflected in milestone evaluations; and (iv) students are embedded in a departmental peer community while retaining the PSE identity of their degree.

3.2 Ph.D. Credits and Course Requirements

Lehigh University requires **72 credits beyond the bachelor's** or **48 credits beyond a prior master's**, including coursework **and** research/dissertation credits. The exact split between courses and research is set by the **home department/program**. Credits already counted toward a previous master's **can't** be double counted toward the PhD, unless the previous master's program is the Lehigh PSE program.

- **Core Coursework:** All PSE Ph.D. students are required to complete **three core courses (totaling 9 credits)** as part of the total required credits. These core courses ensure that every graduate has a fundamental understanding of polymer science and engineering principles. The core courses are:
    - **PSE 492 – Introduction to Polymer Science** (3 credits) – Introduction to polymers, covering basic concepts of polymer chemistry and engineering[2].
    - **PSE 493 – Physical Polymer Science** (3 credits) – Covers polymer physics, structure-property relationships, etc.[2].
    - **PSE 494 – Polymer Thermodynamics** (3 credits) – In-depth study of thermodynamics as applied to polymer systems[2]. (*Note:* PSE 494 is the recommended thermodynamics course. Alternatively, **any other 400-level graduate thermodynamics course** may be taken to satisfy the thermodynamics core, with approval[1]. For example, MAT 496 (Polymer Thermodynamics) has been recommended in the past[4], and it aligns with PSE 494 content.
- **Dissertation credits:** credits related to dissertation work can be obtained by enrolling to PSE 499 each semester until the work is completed.
- **Electives:** to be decided with the research advisor in the home department.

3.2 Teaching Assistant (TA) Requirement

- **Policy source:** Home department policy controls. If the home department requires a TA assignment (e.g., one full semester), PSE Ph.D. students must satisfy it accordingly (including any language-proficiency prerequisites).
- **PSE expectation:** TA experiences should, where possible, relate to the student's background or research area (e.g., polymers, soft materials, characterization). Any exceptions or substitutions follow home-department petition processes.

3.3 Qualifying Examination

- **Format & timing:** Home department rules apply (written/oral components, timing, grading criteria, and retake policy).
- **Committee composition (PSE overlay):** The Qualifying Exam committee must include at least one PSE-affiliated faculty member from outside the home department. That member

is a full voting participant and should have access to the proposal/papers in the same timeframe as other members.

- **Scope guidance:** While the exam primarily tests the home-discipline foundations, students should be prepared to discuss polymer-specific context (e.g., structure–processing–property relationships, polymer thermodynamics/kinetics, characterization) at a level consistent with their proposed research.

3.4 Doctoral Committee

- **Formation & approvals:** Follow home department procedures (size, eligible ranks, external member policies, and approval workflow). Students are encouraged to form committees early (typically within 1 year of passing the qualifier).
- **Composition (PSE overlay):** The Dissertation Committee must include ≥1 PSE-affiliated faculty member from a department other than the home department. This member may also serve on the Qualifying Exam committee to provide continuity.
- **Function:** The committee guides coursework breadth/depth; reviews annual progress; evaluates the proposal/general exam; and ultimately evaluates the dissertation and defense.

3.5 Annual Review

- **Cadence & materials:** Home department practice governs (annual reports, advisor/committee meetings, and documented feedback). Students should summarize PSE-relevant progress (seminar engagement, polymer-focused coursework, dissemination activities) in their annual materials.
- **Advising:** Students are expected to meet regularly with the advisor (and co-advisor, if any) and to solicit interim input from the PSE committee member as research evolves.

3.6 Dissertation Proposal / General Examination

- **Requirements & scheduling:** Home department rules apply for written proposal format, submission timelines, presentation length, and examination protocol.
- **Committee (PSE overlay):** The proposal/general exam is conducted by the approved Dissertation Committee and must include the PSE outside-department member.
- **Outcomes:** Results (pass/conditional pass/fail) and any remediation steps follow the home department's policy and are recorded through its administrative channels.

3.7 Admission to Candidacy

- **Eligibility & paperwork:** Upon successful completion of home-department requirements (qualifier, proposal/general exam, coursework thresholds, etc.), students apply for candidacy using the home department/college forms and deadlines.

- **Registration status:** Post-candidacy enrollment minima and any full-time certification rules follow the home department and college policies.

3.8 Dissertation and Defense

- **Document preparation & submission:** Home department and college guidelines apply for formatting, preliminary draft deadlines, public announcement of defense, and electronic submission (ETD) requirements.
- **Defense committee (PSE overlay):** The final defense committee must include ≥1 PSE-affiliated faculty member from a department other than the home department (same individual as earlier milestones or another eligible PSE faculty).
- **Public presentation:** A public seminar portion is expected unless prohibited by policy or confidentiality; embargo procedures follow university rules.

3.9 Publishable Paper, Residency, and Time Limits

- **Publishable paper:** If the home department/college requires a manuscript submitted/accepted for publication, that rule applies. Even when not required, PSE strongly encourages submission of a peer-reviewed article stemming from the dissertation.
- **Residency & time limits:** Home department/college policies govern residency, leaves, and the maximum time to degree. Students are responsible for monitoring these timelines and coordinating any petitions through the home department.

Practical Checklist for PSE Ph.D. Students

1. Select a home department and confirm the advisor's eligibility there.
2. Map coursework to satisfy home-department and research needs (polymer depth + disciplinary breadth).
3. Confirm committee eligibility early; secure PSE outside-department member for qualifier and dissertation.
4. Track milestones (TA, qualifier, proposal, candidacy, residency) per home department calendars.
5. Plan dissemination (seminars, conferences, manuscripts) consistent with PSE's interdisciplinary goals.

Questions about eligibility of a PSE-affiliated faculty member or committee composition? Contact the PSE Program Director or Graduate Coordinator before submitting committee forms to avoid delays in approvals.

3.10 Health Insurance, Desk Assignments, Keys and Mailboxes & Safety Requirements

Access to good insurance is essential for the health of our students, and the University policy requires ALL resident graduate students to have health insurance. To this end, the University established a subsidy program to help eligible graduate students pay for health insurance and a payroll deduction option to help students who wish to avoid one large payment. Plans are available to cover dependents/partners at an additional cost. Details on the health insurance programs, subsidies, and their eligibility requirements are provided by the **Office of Graduate Student Life**. Please contact them if you have any questions.

Desk Assignments, Keys and Mailboxes & Safety Requirements should be addressed according to the guidelines and regulations of the home department.

4.0 Program Regulations & Petitions

This section covers various administrative and policy matters, including how to address grievances, the process for petitions (requesting exceptions or changes), transferring credits, and other miscellaneous departmental regulations. The PSE program aligns with the broader college policies and uses the Rossin College and university frameworks for these processes, with some adaptation for an online interdisciplinary program.

4.1 Grievance Procedures

If a PSE student has a **complaint or concern** about an academic matter – for example, an issue with a course, an instructor, advising, or any aspect of the program – the first step is to seek resolution informally by discussing it with the relevant individual or the Program Director. Many issues can be resolved through open communication. However, if a student feels that their concern has not been adequately addressed through informal means, they should bring the complaint to the attention of the program's leadership in a formal way.

For the Polymer Science and Engineering program, grievances can be directed to the **PSE Program Director or the Graduate Coordinator** (contact via email at *inpse@lehigh.edu* or the coordinator's email/phone). Provide a clear written description of the issue and any steps already taken to resolve it. The Program Director (or a small committee of polymer faculty, if needed) will review the complaint. In most cases, the program will provide a written response or decision to the student after considering the matter.

If the student is **not satisfied with the response** from the program level, or if the issue involves a conflict of interest at that level, the student may escalate the grievance. The next step could be to petition the Associate Dean of Graduate Studies of the College of Engineering or to form an ad-hoc faculty committee to re-examine the case (this is analogous to what happens in a department where a select faculty committee might be convened for grievances). Ultimately, the student has the right to appeal to higher university authorities if necessary (for example, the Graduate Student Life Office or the University Ombudsperson).

In summary, the **grievance process** is:
1. **Program Level:** Communicate issue to Program Director/Coordinator -> receive response.
2. **College Level:** If unsatisfied, escalate to the college's graduate academic grievance process (Associate Dean's office).
3. **University Level:** Further appeal through formal university grievance channels (per the University Graduate Student Handbook).

Lehigh aims to ensure fairness and due process, so do not hesitate to voice concerns. The goal is always to resolve issues in a fair and prompt manner. (Most academic grievances at Lehigh are resolved at the department/program level.)

4.2 Petition Process

The right of petition is open to all graduate students at Lehigh. A **Graduate Student Petition** is a formal request for an exception to or deviation from established policies and regulations. PSE students may file petitions for various academic reasons. The petition process for PSE follows the standard College of Engineering procedure:

- **Petition Form:** Students must complete the Graduate Student Petition form (available from RAS or the college's website). The form must be filled out completely, including the student's explanation of the request and justification. The student should sign the form.

- **Approvals:** The petition form typically requires a series of endorsements before it is considered by the college committee. The student should obtain signatures from: **(1)** their faculty advisor (if applicable), **(2)** the PSE Program Director (acting in the role of department chair for this interdisciplinary program), and **(3)** the College's Associate Dean of Graduate Studies. (At Lehigh, petitions from engineering students are reviewed by the Standing Committee on Graduate Studies, but they first must be approved at the program/department level and by the associate dean.) The PSE Graduate Coordinator can assist in routing the petition for the necessary signatures.

- **Submission and Review:** After collecting the required signatures, the petition is submitted to the Registrar's Office, which forwards it to the appropriate committee (often the Standing Committee of the graduate faculty or an associate dean) for final decision. Petitions are reviewed on a case-by-case basis, and the outcomes are determined by majority vote of the committee (if applicable) or by the associate dean's office. The registrar will notify the student of the decision, usually after the next scheduled committee meeting. The graduate petitions committee meets periodically (approximately monthly during the academic year), so students should be mindful of timing – a petition should be submitted well in advance of when an answer is needed.

- **Common Reasons for Petitions:** Some situations that require an approved petition include (but are not limited to):

- Changing status from non-degree (associate) student to regular degree-seeking student (for example, if someone started taking courses as a non-matriculated student and then wants to enter the PSE program formally).
- Readmission to the program after an absence of one year or more (if a student has stopped out and not maintained continuous enrollment, they need to petition for readmission).
- Extension of time limits (e.g., if a student needs more than 6 years to finish the MS, they would petition for an extension).
- Removal of an "Incomplete" grade after the one-year deadline has passed (by rule, an "N" grade turns to "F" after one year if not resolved; to change it after that point requires petition).
- Substitution or waiver of a required course or requirement (e.g., if a core course must be waived or replaced due to special circumstances).
- Transferring more credits than normally allowed (though the normal limit is 9, any exception would need a petition).
- Forming a Ph.D. committee with non-Lehigh members or other special membership, etc., in case a PSE student later goes to a Ph.D. (if needed, they would petition for an outside member on committee, for example).

Essentially, **any request for an exception to academic rules or any unusual academic arrangement** requires a petition. Each petition is evaluated individually, and approval is not guaranteed – the committees consider the academic rationale and impact on standards.

- **Timeline:** Petitions should be submitted as early as possible. For instance, if you know you need an extension of time, don't wait until your time has expired; petition before the deadline. Or if you need to transfer credit from a course you took elsewhere, do it in the semester after you took the course, not at the very end of your program.

- **Outcome:** The decision on the petition will be communicated in writing (often via email and recorded in Banner by the Registrar). If approved, the exception is noted on your academic record or the necessary offices are informed. If denied, the student must adhere to the standard policy or consider alternatives.

For assistance with petitions, contact the PSE Graduate Coordinator. They can provide the form and guidance on how to fill it out and obtain approvals. Also, refer to the RAS website for the **electronic petition submission** process (some petitions may be submitted online depending on the current system).

4.3 Transfer Credit Policy

Students in the PSE graduate program may wish to transfer graduate credits from other institutions. Lehigh's general **transfer credit policy** for graduate programs in engineering is as follows:

- A maximum of **9 credits** of graduate-level coursework taken at another accredited institution may be transferred into a Lehigh Engineering master's program.
- Only courses with a grade of **"B" or better** are eligible for transfer. Courses graded Pass/Fail or Satisfactory/Unsatisfactory typically cannot be transferred, nor can research credits.
- The courses must not have been used to fulfill requirements for any prior degree. In other words, you cannot double-count courses that were part of, say, a completed Master's or an undergraduate degree. They should be excess or non-degree graduate credits, or from an unfinished graduate program.
- The credits must be relevant to the PSE program. Typically, they should be similar to courses offered at Lehigh and fit into the polymer science curriculum (electives or possibly a substitute for a core course, if appropriate). For example, if you took a graduate course in polymer rheology at another university, you might transfer it as an elective here. Approval from the Program Director is required to determine equivalency and suitability.
- The coursework to be transferred should have been completed **within four years** prior to your first enrollment in the Lehigh PSE program. Credits older than that may be considered "stale" and less likely to be accepted (exceptions might be made via petition if justified).
- To request a transfer, you must submit a **Graduate Course Credit Transfer Petition** form to the Registrar, along with an official transcript from the other institution and possibly the course description or syllabus for each course. The form requires approval by the Program (Program Director) and the Department Chair or equivalent, as well as the Associate Dean.
- If you are a **Lehigh undergraduate** who took graduate courses here that were not used for your undergraduate degree, there are separate internal rules. (Typically, Lehigh undergrads can take up to 6 credits of graduate courses that can later count toward a grad degree, as long as they were not needed for the B.S. – this still counts toward the 9 credit transfer limit but does not require an external transfer since it's within Lehigh. Nonetheless, you would list them and ensure they carry over.)

In summary, up to three courses (9 credits) from outside can count, which means a minimum of 21 credits must be taken within the PSE program at Lehigh. For certificate students, since the certificate is 12 credits, usually transfer credit is not applicable (Lehigh requires certificate credits to all be taken at Lehigh, with few exceptions).

It's recommended to discuss any potential transfer courses with the Program Director **before** or at the time of application/admission. Often, an evaluation of transfer credits can be done early so you know what will count.

For more detailed guidelines and to get the necessary forms, refer to the RAS website's section on transfer credits.

4.4 Important Resources & Sources

4.4.1 Important Resources

The resources listed below are here to help guide you throughout your academic journey from start to finish. You will find important links related to your graduate program milestones that need to be completed and additional information from the P.C. Rossin College of Engineering and Applied Science (RCEAS).

1. Polymer Science Engineering - Homepage
2. P.C. Rossin College of Engineering and Applied Science (RCEAS) Graduate Student Resources - Administrative forms for graduate students on this page.
3. University Policy for Graduate Students (RCEAS Graduate Student Handbook) - Useful items like the university and college procedures and detailed information on degree programs and requirements on the page.
4. Office of Registrar Forms - In the Graduate Forms section, you will find additional administrative forms on this page.
5. Graduation - This is where you will go when you are getting close to finishing your PSE program to apply for graduation and to make sure that you have completed the Graduate Graduation Checklist items that pertain to your specific program.

4.4.2 Sources

[1] Polymer Science Engineering Program | P.C. Rossin College of Engineering & Applied Science
https://engineering.lehigh.edu/pse/academics

[2] Polymer Science and Engineering Courses | P.C. Rossin College of Engineering & Applied Science
https://engineering.lehigh.edu/pse/academics/courses

[3] Certificate in Polymer Science and Engineering | P.C. Rossin College of Engineering & Applied Science
https://engineering.lehigh.edu/pse/academics/certificate-polymer-science-and-engineering

[4] Online Polymer Science and Engineering (Master's) | Office of Distance Education
https://distance.lehigh.edu/online-programs/masters-degree-programs/online-polymer-science-and-engineering-masters

[5] Polymer Science and Engineering (MS, Certificate) | Lehigh University
https://www2.lehigh.edu/academics/graduate-studies/polymer-science-and-engineering-ms-certificate

[6] Polymer Science and Engineering < Lehigh University
https://catalog.lehigh.edu/coursesprogramsandcurricula/interdisciplinarygraduatestudyandresearch/polymerscienceandengineering/

[7] Graduation | Office of the Registrar
https://ras.lehigh.edu/current-students/graduation