

2024-2025



MICHIGAN STATE UNIVERSITY

SCHOOL OF PACKAGING

GRADUATE STUDENT HANDBOOK

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PROGRAM OVERVIEW

GRADUATE PROGRAM STUDENT HANDBOOK 2024-2025

MISSION STATEMENT

The mission of the School of Packaging at Michigan State University is to educate packaging professionals and to create innovative solutions that enhance or maintain product quality, increase efficiency, and reduce waste. In doing so, we contribute to the economic development and quality of life of citizens within the State of Michigan and across the world through highly relevant educational experiences and cutting-edge research.

School of Packaging Administrative Offices

Interim Director, Dr. Laura Bix	bixlaura@msu.edu
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PROGRAM INTRODUCTION

The School of Packaging offers graduate programs leading to the degrees of Master of Science in Packaging and PhD in Packaging. The MS program offers both Plan A: Thesis (residential) and Plan B: Non-Thesis (residential or online). For the PhD and Plan A programs, all or most of the coursework and research will be carried out on-campus.

Plan	Sub-Plan	Note
PhD	Dissertation	Coursework/Research/Residential
MS Plan A	Thesis	Coursework/Research/Residential
MS Plan B	Non-Thesis	Coursework/Residential
MS Plan B	Non-Thesis	Coursework/Online

From the moment of product design and development, through final use by a consumer, packaging makes a product convenient to transport, protects the product from physical, chemical, and biological hazards, and conveys instructions that are easy to understand. It is a goal of packaging to use the most effective and economical materials to accomplish these functions.

Packaging materials and systems are constantly changing to meet today's needs. Packaging professionals use modern technology and innovative approaches to develop or modify packaging.

The graduate student population is characterized by diversity. There is a substantial representation of international students from a variety of countries in Asia, Europe, Africa, and the Americas. Many students, both international and domestic, have completed undergraduate degrees in a discipline other than packaging. Engineering and science-related degrees are most prevalent, but business degrees are not uncommon, and other degrees have included printing technology, product design, and many more. Special

courses are provided for graduate students without packaging B.S. degrees to acquire the core undergraduate-level knowledge of packaging.

Graduates of the MSU School of Packaging are sought after by employers in the United States and internationally. Few graduate students leave the program without at least one job offer in hand. Graduates with advanced degrees are more likely to go into education, research, or management positions than those with B.S. degrees, and less likely to go into production positions. A wide variety of types of companies employ graduates with advanced degrees, as well as those with bachelor's degrees.

Facilities and instrumentation are available for advanced study and research in the following areas: product and/or package damage in the physical distribution environment, barrier characteristics of packaging systems and materials, quality preservation and storage stability of packaged products, mechanical properties of packaging materials and systems, distribution packaging, packaging systems development and optimization, medical/pharmaceutical packaging, human factors in packaging, various aspects of packaging in business and marketing, recycling, environmental impacts of packaging, and related areas.

Students engage in a combination of formal coursework as well as independent efforts that result in a MS Plan A: Thesis or PhD Dissertation. A coursework-only plus Capstone Paper is available for the MS Plan B: Non-Thesis level. Programs of study and research are flexible and are designed to meet the needs of individual students. Emphasis is placed on a broad education in packaging and specialized training in one of the above areas of study.

All on-campus graduate students are expected to attend the School of Packaging orientation program during Fall semester. The orientation program includes an overview of the graduate program and of department policies and procedures. The major goal is to familiarize students with the program and provide an opportunity for them to meet their fellow graduate students. The orientation program also focuses on an introduction to the School's faculty and an overview of their research interests and activities, as well as any special research opportunities that currently exist. The major goal is to assist students in choosing a Faculty Advisor. The time and date of the orientation is announced to students in late Summer.

PROGRAM COMPONENTS AND PLAN OPTIONS

PhD Program

The official program of study leading to a PhD consists of completing required course work and credits, passing of a comprehensive examination, completion of a research program and a satisfactory written dissertation based on the research, and successful defense of the dissertation, which includes a public seminar and a final oral examination. These elements of the program are described below, along with other requirements that must be met to successfully complete the program of study.

Study in the PhD program generally focuses on material science applications in packaging, food packaging, medical packaging, mass transport applications, the dynamics and physical distribution aspects of packaging, human factors in packaging, and/or sustainability of packaging systems.

Completion of the PhD degree normally requires about three years of full-time study after the MS degree, culminating in completion and defense of a PhD dissertation. [Course requirements](#) are flexible.

Faculty Advisor

The Faculty Advisor is responsible for assuring that each graduate student under their guidance receives information about requirements and policies of the graduate program. The Faculty Advisor will advise the graduate student on developing a program plan, including selection of Guidance Committee members, course plan, research strategy, and on resources available for carrying out the program.

Guidance Committee

The student's Guidance Committee will set specific course requirements for each individual student based on the student's background, interests, and career goals. These course requirements must be completed and approved by the Guidance Committee. The committee also outlines the general dissertation topic.

Comprehensive Exam

The student must pass a comprehensive examination to demonstrate depth of knowledge in the research area, and a sound research plan that is reasonable in scope. The examination must be taken by the beginning of the student's third year in the program.

Dissertation

The PhD dissertation is intended to make a significant contribution to packaging-related knowledge, and to demonstrate the student's ability to plan, carry out, and report on a significant body of independent research. PhD students are expected to have at least 1 article submitted to a refereed journal prior to scheduling their dissertation defense.

Seminars

Students must attend research and project presentations given by their fellow students, as well as the School's regular seminar program.

MS to PhD

Admission is offered to students who hold:

1. A master's degree in packaging or in a related science or engineering area, for which a thesis was required, or
2. A bachelor's degree in packaging or in a related science or engineering area with significant intensive research experience such as having a peer-review publications as main author, and/or demonstrating the outcome of any research work carried and completed by the candidate.

MS Plan A: Thesis and Plan B: Non-Thesis (Residential or Online)

Plan	Sub-Plan	Note
MS Plan A	Thesis	Coursework/Research/Residential
MS Plan B	Non-Thesis	Coursework/Residential
MS Plan B	Non-Thesis	Coursework/Online

The official program of study leading to an MS consists of completing required course work and credits.

- [MS Plan A: Thesis](#) requires completion of a research program (6-8 credits of PKG 899 research) and a satisfactory written thesis based on the research, and successful defense of the thesis, which includes a final oral examination.
- [MS Plan B: Non-Thesis](#) requires completion of coursework and a Capstone Paper.

Completion of the MS degree normally requires about 2 years of full-time study, longer if [collateral courses](#) must be taken.

Course Requirements

All students must complete a minimum of 30 credits, not including [collateral courses](#).

Faculty Advisor

The Faculty Advisor is responsible for assuring that each graduate student under their guidance receives information about requirements and policies of the graduate program. The Faculty Advisor will advise the graduate student on developing a program plan, including selection of Guidance Committee members, course plan, research strategy, and on resources available for carrying out the program.

Guidance Committee

The student's Guidance Committee will set specific course requirements for each individual student based on the student's background, interests, and career goals. These course requirements must be completed and approved by the Guidance Committee. The committee also outlines the general thesis topic.

Thesis

The MS Plan A: Thesis is intended to make a significant contribution to packaging-related knowledge, and to demonstrate the student's ability to plan, carry out, and report on a significant body of independent research.

Capstone

A [Capstone Paper](#) is required of all MS Plan B: Non-Thesis students during the last semester of their program.

Seminars

Students must attend research and project presentations given by their fellow students, as well as the School's regular seminar program.

Study in the MS program generally focuses on material science applications in packaging, food packaging, medical packaging, mass transport applications, the dynamics and physical distribution aspects of packaging, human factors in packaging, and/or sustainability of packaging systems.

MS Plan B: Non-Thesis (Online)

The School also offers a MS Plan B: Non-Thesis (Online) program. Online students usually study on a part-time basis, and have a somewhat more limited selection of classes available, but it is possible to complete the degree without coming to the campus. This program is intended primarily for professionals working in the field of packaging.

Program requirements for the MS Plan B: Non-Thesis (Online) program are identical to those for the MS Plan B: Non-Thesis (Residential) program.

Course Requirements

All students must complete a minimum of 30 credits, not including [collateral courses](#).

Faculty Advisor

The Faculty Advisor is responsible for assuring that each graduate student under their guidance receives information about requirements and policies of the graduate program. The Faculty Advisor will advise the graduate student on developing a program plan, including selection of Guidance Committee members, course plan, and on resources available for carrying out the program.

Guidance Committee

The student's Guidance Committee will set specific course requirements for each individual student based on the student's background, interests, and career goals. These course requirements must be completed and approved by the Guidance Committee.

Capstone

A [Capstone Paper](#) is required of all MS Plan B: Non-Thesis students during the last semester of their program.

Seminars

MS Plan B: Non-Thesis (Online) are excused from attendance at seminars.

Program Overview Glossary

Glossary	Description
GradPlan	The web-interactive system for students to create and store their Degree Plans and subsequent graduate program activities. Students can link to the log-in page: https://student.msu.edu .
Faculty Advisor	The Faculty Advisor will advise the graduate student on developing a program plan, including selection of Guidance Committee members, course work, research plan, and on resources available for carrying out the program.
Guidance Committee	The student's Guidance Committee shares responsibility with the Faculty Advisor for reviewing the graduate student's progress and guiding the student toward completion of course and program requirements.
Course Plan	Courses will be prescribed by the Guidance Committee to ensure that the student will have a comprehensive knowledge of a major field and related subjects. The courses that a student is required to complete will depend upon prior academic background in relation to the selected graduate program.
Collateral Courses	Students lacking the equivalent of a bachelor's degree in packaging will be required to complete collateral courses to make up any deficiencies, in addition to the normal program requirements
Annual Progress Report	Graduate students have a right to periodic evaluations to assess their academic progress, performance, and professional potential.
Research Seminars	Graduate students are also required to attend seminars presented by their fellow students, as well as seminars that are part of the School of Packaging Seminar Series.
Comprehensive Exams	The purpose of the comprehensive examination is for the student to demonstrate both depth of knowledge in the research area and a sound research plan that is reasonable in scope.
Final Oral Examination	The final oral examination in defense of the thesis/dissertation is conducted and evaluated by the Guidance Committee.

APPLICATION AND ADMISSIONS

GRADUATE PROGRAM STUDENT HANDBOOK

2024-2025

ADMISSION SEMESTERS AND DEADLINES

Program	Admit Semester	Application Deadline
PhD	Fall Only	<p>October 31 ** Deadline for MSU funding consideration</p> <p>February 15 ** Final deadline (firm)</p>
MS Plan A: Thesis	Fall Only	
MS Plan B: Non-Thesis (Residential)	Fall Spring* Summer*	
MS Plan B: Non-Thesis (Online)	Fall Spring* Summer*	
<p>*Admission for the Spring and Summer sessions are only considered for Master's Plan B: Non-Thesis (Residential and Online) students, if the student holds a Packaging undergraduate degree.</p> <p>**The application deadline of October 31st is for the following Spring semester* and February 15th for the following Summer session.</p>		

Note: International students are encouraged to apply early and submit official test scores. Approval for international students can take longer if all official documents are not submitted, which can delay the visa process.

Applications will be valid for one year (measured from the first semester of chosen enrollment). Once granted, admission usually is good for one year. Admitted graduate students who wish to change their first semester of enrollment should contact the School of Packaging Graduate Program Coordinator to initiate the process for a change in admit date.

Readmission

A packaging graduate student seeking re-enrollment after an absence should follow the [Office of the Registrar](#) instructions for Graduate Education – Readmission to Original Program or Readmission with Change of Program, where an online application is available. Readmission is required if more than 12 months will elapse between enrollments. A student who has not been enrolled for less than 12 months is not required to request readmission and can simply enroll in classes. International students should contact the Office for International Students and Scholars, as special requirements may apply. PhD students should check with their former Faculty Advisor to be sure that the professor is still willing to serve as the student's Faculty Advisor and discuss funding if this was offered before the student left MSU.

A graduate student previously enrolled at MSU who wishes to pursue a degree or program other than the one originally sought, and **who has not been enrolled for three consecutive semesters** (including Summer) or who has completed prior courses of study, must file a new graduate application. Current graduate students at MSU are advised to contact the Graduate Program Director, School of Packaging, for discussion of the optimal procedure for their specific situations.

Note: Graduate students whose enrollment at MSU is interrupted for any reason and have not been enrolled for three consecutive semesters (including Summer), must apply for readmission at <https://reg.msu.edu/StuForms/ReAdmission/Readmission.aspx>

Student Residency

Michigan State University will not be offering certain online programs to students based on their residence at the time of application for admission to Michigan State University - see State-By-State Summary <https://esp.msu.edu/StateSummary.pdf>

Application Requirements

Requirements	Applicant	
	MS	PhD
Slate Student Portal https://explore.msu.edu/apply Applicants can submit and check on the status (completeness) of their applications by logging into their student portal.	MS	PhD
Online Application - Slate Complete the Online Application for Admission to Graduate Study, paying the application fee by credit card number, electronic check, or money order. International Students: Please print your name on the application exactly as it appears in your passport. The information will be used to complete the necessary visa documents, so matching your passport information is critical.	MS	PhD
Faculty Advisor A PhD applicant must find a faculty member willing to serve as their major advisor before admission can be offered. Faculty information can be found at https://www.canr.msu.edu/packaging/our-team .		PhD
Supplemental Questions Complete the School of Packaging Supplemental Questions as part of your MSU application.	MS	PhD
Transcripts Request the registrar of each college or university attended to send an official copy of any previous schooling (mark sheets, transcripts, diplomas, certificates, etc.) directly to the Graduate Program Coordinator, School of Packaging, in a sealed envelope that shows the school seal or stamp. <ul style="list-style-type: none"> • If the college or university is using an electronic transcript service such as AVOW or eScrip-Safe, the transcripts must instead be sent <u>directly</u> to the MSU Office of Admissions. Electronic transcripts are not accepted by the School of Packaging from international institutions. • Official translations must be provided when originals are not in English. These will be recorded and forwarded to Admissions. • Documents must arrive in an envelope sealed by the university. • Documents issued to students and opened are not acceptable. • If the transcript does not indicate that the degree has been awarded, a copy of the diploma is also required. MSU Applicants: Must upload a copy of MSU transcripts.	MS	PhD

Requirements (continued)	MS	PhD
Letters of Recommendation Three (3) letters of recommendation in support of the application.	MS	PhD
GRE - Optional Take the Graduate Record Examination (GRE) and have official results sent to the University. MSU's code is 1465 and there is no subject code for Packaging; use the code for "other". Although optional, GREs are highly encouraged.	MS	PhD
Academic Statement: The Academic Statement should include interest areas and a brief plan of study, if possible. If a research-based program is planned the subject of the research must be within the capabilities of and consistent with the goals of the School at the time of application. (See application form for guidelines for Academic Statement, stating your plans for graduate study and your professional career. See also, the attached list of faculty and research interests in Appendix 2.) Personal Statement: The separate Personal Statement should include those aspects of your background and experiences that motivate your desire to pursue the degree, as well as any factors that you feel make you worthy of special consideration for admission.	MS	PhD

Additional Requirements for International Student

The MSU Office of Admissions has a mid-June deadline to admit international students. If we are unable to forward our recommendation of admission to the MSU Office of Admissions for lack of requirements, or if Admissions disapproves of the application for any reason, the offer of admission is automatically rescinded. If this happens, you may be able to defer to a future semester, but this is not always possible depending on the circumstances.

Application Deadline

It is vital that international students apply and submit all requirements at least by the application deadlines listed above. Applications submitted after these deadlines will not be reviewed.

- To ensure full consideration, all documentation must be received by the School by or before the Packaging application deadline. Admission decisions for completed applications will be made as soon as possible after the application deadline.
- Admitted students who do not enroll (arrive on campus) as scheduled will not be guaranteed admission at a later date. To ensure full consideration, the application for admission and all requirements listed above should be received by the School by or before the deadlines shown above.
- International students must apply before the deadlines. Supporting materials need not be submitted all at the same time; the application form may be submitted prior to other materials becoming available.

English Proficiency

International students whose native language is not English are also required to demonstrate proficiency in English before admission. For waiver consideration information, contact the Packaging Graduate Program Coordinator.

Financial Proof

The student must provide evidence of financial ability to pursue a graduate program at MSU before the letter of acceptance to the University will be mailed. Details of the procedures and amount required can be found at The Graduate School at <https://grad.msu.edu/internationalapplicants>. The Affidavit of Support is available through the Office for International Students and Scholars at <https://oiss.isp.msu.edu/forms>.

International Admit Deadline

- Applications from prospective international students must be received by or before the deadlines indicated in the earlier sections.
- If the application for admission is approved, a certificate of acceptance to the University will be emailed to the student with instructions on next steps, including accepting or denying the offer. Then, a U.S. Department of Justice I-20 form will be emailed by either the MSU Office of Admissions or the MSU OISS. The School of Packaging does not handle I-20s. **No prospective international student should plan to enter the United States before receiving both a certificate of acceptance and an I-20.** It will be necessary to present the certificate upon application for a student visa, and again upon arrival at the University. The Office for International Students and Scholars issues these documents, following recommendation by the Office of Admissions, and will remain in direct contact with each applicant. For students entering the online program, no visa documents are needed, and none will be issued.
- As of Spring 2017, if students are admitted on a provisional basis because of language proficiency requirements, they can be issued an I-20 for language studies only. This I-20 is limited to a maximum of two (2) years. The student would need to be tested at the English Language Center upon arrival and begin studying in the English level determined by that test. Once the student meets the departmental requirements for language, the student may be issued a degree-seeking I-20. If the student has not met the stated language proficiency requirement for department/program admission at the end of two years, the student cannot continue to enroll for courses.
- The international student must provide evidence of financial ability to pursue a graduate program at MSU before the certificate of acceptance to the University will be mailed. Details of the procedures and amount required, as well as the Affidavit of Support for Graduate International Students, can be found at The Graduate School website at <https://grad.msu.edu/internationalapplicants> under “financial proof”. For questions regarding the financial proof amount to show, contact the Packaging Graduate Program Coordinator. MS students should not expect financial aid from the University. Financial proof is not required for online students.
- International students who enroll in the University are required to buy the University student insurance, or to demonstrate that they have equivalent coverage. Details about requirements can be obtained from the Office for International Students and Scholars. Information about the student insurance program can be obtained from the [MSU Human Resources Office](https://www.hr.msu.edu/benefits/students/health), or <https://www.hr.msu.edu/benefits/students/health>. This requirement does not apply to international students in the MS Plan B: Non-Thesis program who reside outside of the U.S. For those MS Plan B: Non-Thesis international students residing in the U.S., a waiver should be completed <https://oiss.isp.msu.edu/health-wellness-and-safety/us-health-care-insurance>.
- All applicants without full native fluency in English must demonstrate proficiency by submitting English Language scores. For information and testing agencies approved by MSU, go to <https://grad.msu.edu/internationalapplicants>.
- For up-to-date information on minimum scores for both regular and provisional admission, go to <https://grad.msu.edu/english-language-competency>.
- Applicants who do not meet the minimum requirements for provisional admission will not be admitted to academic programs. They may apply directly to the English Language Center for study of English only. Any questions about these requirements should be directed to the English Language Center at <http://elc.msu.edu>.

It is vital that international students apply and submit all requirements at least by the application deadlines listed above. Applications submitted after these deadlines will not be reviewed.

Complete the School of Packaging Supplemental Questions as part of your MSU application.

Admission Criteria

Criteria	Applicant	
	MS	PhD
<p>Acceptance to MSU Acceptance of an applicant is determined by the University Admissions Office, on recommendation of the School of Packaging, with the approval of the Dean of the College of Agriculture and Natural Resources, after consideration of the applicant's academic record, GRE scores (optional), experience, personal qualifications, and objectives.</p>	MS	PhD
<p>General MS Plan A and Plan B Admission General admission criteria are the same for the MS Plan A: Thesis and MS Plan B: Non-Thesis (residential or online). However, enrollment in the MS Plan A: Thesis is limited, and not all qualified students can be accepted.</p> <p>Applicants to the MS Plan A: Thesis and Plan B: Non-Thesis graduate programs are expected to have:</p> <ul style="list-style-type: none"> • a year of college level chemistry (including introductory organic chemistry). • a year of college level physics. • a semester of calculus. <p>Prospective students who do not have this background are encouraged to take equivalent courses at a community college or university in their locale prior to coming to Michigan State University, as completion of these courses is ordinarily required before admission to the program.</p> <p>MS Plan B: Non-Thesis (online) program application requirements are the same as the MS Plan B: Non-Thesis (residential) program with the following exceptions:</p> <ul style="list-style-type: none"> • Financial proof is not required. • An I-20 will not be sent. • International students can request Health Insurance waivers under certain circumstances at https://oiss.isp.msu.edu/health-wellness-and-safety/us-health-care-insurance for the full instructions and information. 	MS	
<p>Regular/Provisional Status Applicants who are admitted are classified as regular, for students who are fully qualified to undertake the degree program; or provisional, for students who have not met the English proficiency requirements.</p>	MS	PhD
<p>Grade Point Average - PhD A grade-point average of at least 3.40 (4-point scale) is required. (Admission may be granted to an applicant who does not meet the above requirements but shows outstanding potential.) Admission is contingent on acceptance of the applicant by a faculty member willing to serve as the applicant's Faculty Advisor. The Faculty Advisor will do an assessment of the applicants' credentials, research experience, publications from their previous degrees, work experience, and any other credential that the Faculty Advisor chooses. Applicants are encouraged to correspond with faculty working in their areas of interest who they would like to have as their Faculty Advisor, to let faculty know of their interest and qualifications. The Graduate Program Director can assist applicants in identifying appropriate faculty members.</p>		PhD
<p>Grade Point Average – MS For the last two years of the undergraduate program (approximately 85-90 term hours or 60 semester hours), an average of 3.0 (B) or higher is normally required.</p>	MS	

Criteria <i>(continued)</i>	Applicant	
	MS	PhD
Faculty Advisor Acceptance by a Faculty Advisor does not guarantee admission. A limited number of students are admitted each year. Thus, unfortunately, the School may be unable to offer admission to several highly qualified students.		PhD
Background <ul style="list-style-type: none"> • A Bachelor's degree in packaging or a related undergraduate field (e.g., food science, engineering, business, physics, chemistry, agriculture, etc.) is required for admission to the Master of Science program. • Students lacking the equivalent of a bachelor's degree in packaging will be required to complete collateral courses to make up any deficiencies, in addition to the normal program requirements. 	MS	PhD
PhD Background Consideration <ul style="list-style-type: none"> • A master's degree in packaging or in a related science or engineering area, for which a thesis was required, or; • A bachelor's degree in packaging or in a related science or engineering area with significant intensive research experience such as having a peer-review publications as main author, and/or demonstrating the outcome of any research work carried and completed by the candidate. • Students lacking the equivalent of the above will be required to complete collateral courses to make up any deficiencies, in addition to the normal program requirements. 		PhD
Financial Aid Students in need of financial assistance should go to the Office of Financial Aid for information, http://www.finaid.msu.edu/grad.asp . Note that international students are not eligible for funding through the Office of Financial Aid. Financial Aid from the University is not available for students in the online MS program.	MS	PhD

Transfer Credits

On the recommendation of the Guidance Committee, up to 9 graduate credits can be transferred from other recognized graduate education institutions, provided at least a 3.0 grade using a 4-point scale is earned in each course transferred, and the courses were completed within the time limits for the degree.

Shared Programs Undergraduate to Graduate-UG2G (Formerly Dual Enrollment)

Guidelines for the new Shared Program are pending. Please consult Aaron Tucker, Undergraduate Packaging Advisor for guidance.

1. Students must complete their first bachelor's degree prior to beginning any graduate degree program.
2. Students initiate interest in a Shared Program by completing the Shared Programs-UG2G Request Form that will soon be available on the Graduate School website through the Forms link.
3. Students must submit the form before beginning any shared course work.
4. At most 30% of the total number of credits required for the graduate degree taken at the undergraduate level can be used to satisfy graduate degree program requirements. That is, for a 30 credit Master's degree program, at most 9 credits taken at the undergraduate level may be used towards the Master's degree.
5. Full details will be available soon in the Academic Programs catalog.

PHD PROGRAM

GRADUATE PROGRAM STUDENT HANDBOOK

2024-2025

PHD DEGREE REQUIREMENTS

All students must meet the University and College requirements as stated in the current [Academic Programs](#) publication. Such regulations appear in the section on University Graduate Degree Programs and in the section devoted to the regulations of the College of Agriculture and Natural Resources, as well as in the section for the School of Packaging. Each student is responsible for understanding these regulations. Some of these, along with the School of Packaging requirements, are outlined below.

Residency and Time Limits

Residency requirements and time limits shall be as published in the current issue of the *Academic Programs* catalog. One year of residence on campus after first enrollment for doctoral degree credit is required to permit the student to work with and under the direction of the faculty, and to engage in independent and cooperative research utilizing university facilities. A year of residence will be made up of two consecutive semesters, involving the completion of credits at the level of full-time status of graduate work each semester.

For the PhD degree, Academic Programs requires the comprehensive examinations must be passed within 5 years and all remaining requirements for the degree must be completed within 8 years from the date of matriculation into the doctoral degree program. Application for extensions must be submitted by the School for approval by the Dean of the College and the Dean of the Graduate School. The request for the extension must be submitted at least one semester prior to the end of the relevant time limit. Upon approval of the extension of the eight-year time toward degree, doctoral comprehensive examinations must be passed again unless this requirement is waived by the Dean of the Graduate School as part of the extension.

English Language Proficiency

International students admitted provisionally due to English Language deficiencies must correct that deficiency within two consecutive semesters. Such students will be required to take courses at the English Language Center and will be restricted in the number (if any) of academic courses they will be allowed to take.

Students admitted provisionally for other reasons will be required to meet the conditions specified in the student's admission letter.

Specializations

Michigan State University offers the opportunity for students to formally specialize in a multidisciplinary area, primarily through completion of a set of courses, in addition to meeting the requirements for the degree in the student's major. Completion of a specialization is noted on the student's transcript. A complete list of [graduate specializations](#) is available through the Office of the Registrar.

Policy Changes

When policies are changed, students who have been admitted before the change in policy have the right to choose to comply with the new policy or to complete the requirements following the policy that was in place when they were admitted.

GradPlan

The University requires electronic submission and approval for all doctoral student program planning and reporting, as well as dissertation submission. It is the responsibility of the student to initiate the filing of the program plan at <https://grad.msu.edu/gradplan>. After meeting with the Faculty Advisor and Guidance Committee, the student is to complete their program electronically in GradPlan.

GradPlan must be completed by no later than the end of the student's third semester (excluding Summer). It identifies the Faculty Advisor and Guidance Committee, in addition to the course plan the student is required to complete (excludes [collateral courses](#)), and whether any LLE and Shared Program credits will be included in the program. Once the student submits the plan through Campus Solutions (SIS) for approval, electronic circulation is routed for approvals. Individuals who need to approve are notified by email.

Modifications to the program, including the composition of the Guidance Committee, require approval of the student, Faculty Advisor, committee members, the School Director and the Dean, through submission of an official modification to the program using GradPlan. If the student should choose to enroll in courses not in the course plan, they should be aware that the course may not count toward graduate program requirements. Courses may not be added to or subtracted from a previously approved course plan after a final grade has been awarded. All courses taken before completion of the initial GradPlan are considered part of the student's academic course plan.

Faculty Advisor

Selection of the Faculty Advisor is done prior to admission of students to the PhD program. Applicants are encouraged to correspond with faculty they identify as possible Faculty Advisors, prior to consideration of the student's application. Admission to the PhD requires that at least one faculty member be identified as willing to serve as the student's Faculty Advisor.

The Graduate Program Director will, upon request, direct applicants to faculty working in the student's areas of interest. A listing of faculty and their interest areas is also provided in [Appendix 2](#), and information about faculty and their research areas is available on the School of Packaging website at <http://www.canr.msu.edu/packaging/faculty>.

Students may change Faculty Advisors, if they wish to do so, provided they reach an agreement with another faculty member to serve in that capacity. The (electronic) signature of the School Director on the student's GradPlan constitutes approval of the selection of the Faculty Advisor.

Students have both the responsibility to develop their Guidance Committee and the right to concur with any changes in its membership. See [GSRR, section 2.4.2](#).

If the Faculty Advisor should leave the School of Packaging after the GradPlan is established and approved, the student has the right to continue the approved GradPlan under the supervision of a new Faculty Advisor. The program may be changed only if it is the student's wish to do so.

If the Faculty Advisor leaves the University before the student's degree program is completed, the student, Faculty Advisor, and School Director shall discuss the situation and

determine whether the Faculty Advisor will continue to serve in that role, or whether a new Faculty Advisor must be selected. If the Faculty Advisor has left the University on a status other than retirement, generally a new Faculty Advisor must be selected, although the current Faculty Advisor may continue to serve on the Guidance Committee in a supplementary role. In such cases, the Director will assist the student in selection of a new Faculty Advisor and ensure that the student's right to continue their program is protected. An emeritus faculty member may continue to serve as a student's Faculty Advisor.

Responsibilities of the Faculty Advisor

Faculty advising of all graduate students should be consistent with the [Guidelines for Graduate Student Mentoring and Advising](#). The Faculty Advisor:

- Ensures that graduate students receive information about requirements and policies of the graduate program (e.g., advising graduate students on developing a program plan, including selection of Guidance Committee members, including appropriate course plans, research strategy or creative activity, and on available resources)
- Provides training and oversight in creative activities, research rigor, theoretical and technical aspects of the dissertation research, and in professional integrity and research ethics.
- Advises graduate students on the selection of a dissertation topic with realistic prospects for successful completion within an appropriate time frame and on the formation of a guidance committee.
- Encourages the graduate student to stay abreast of the literature and cutting-edge developments in the field. Assist with developing professional skills in writing reports, papers, and grant proposals, making professional presentations, establishing professional networks, interviewing, and evaluating manuscripts and papers.
- Provides regular feedback on the progress of graduate students toward degree completion (e.g., providing feedback on research or creative activities, course plan, and teaching, completion of [annual progress reports](#), and constructive criticism if the progress does not meet expectations)
- Helps the graduate student develop into a successful professional and colleague, including encouraging the student to participate and disseminate results of research in the appropriate scholarly or public forums.
- Facilitates career development and exploration, including advising on appropriate job, internship, and career options, as well as on the preparation of application materials for appropriate fellowship, scholarship, and other relevant opportunities
- Writes letters of reference for appropriate fellowship, scholarship, award, and job opportunities.
- Provides for supervision and advising of graduate students when the Faculty Advisor is on leave or extended absence
- Assists the graduate student in navigating disagreements among the guidance committee

Guidance Committee

Each student must form a Guidance Committee within the first two semesters of doctoral study. Students will obtain approval and assistance from their Faculty Advisor in forming the committee. It is strongly recommended that students prepare a dissertation proposal for review by committee members prior to beginning their research or shortly thereafter. This is especially valuable as a document to submit to prospective committee members, and as a starting point for outlining the precise research work to be accomplished for the degree.

The approval of the School Director on the electronic GradPlan constitutes approval of the membership of the Guidance Committee. The Guidance Committee must consist of at least four regular faculty members:

- Three must be School of Packaging faculty (including the Faculty Advisor)
- One must be **from another department within MSU, or from outside the MSU community with special approval.** *Faculty with joint appointments can be considered outside members if their appointment is less than 50% in the School.*

Michigan State University policy provides that the Faculty Advisor (chair of the Guidance Committee) and faculty members of Guidance Committees be regular Michigan State University faculty, except as noted in what follows.

- Regular faculty are defined as tenure system faculty.
- Non-tenure-system faculty may serve as Faculty Advisors and as members of Guidance Committees with the [approval of the Dean of the Graduate School](#).
- Emeritus faculty may serve as members of Guidance Committees and may continue to serve as Faculty Advisors with the approval of the School Director.
- While University policy allows specialists to serve as members or chairs of Guidance Committees with the approval of the Graduate School, the School of Packaging does not generally approve such service, except as an additional member of the committee, beyond the minimum required number.
- In general, no more than 2 non-regular faculty members may serve on a doctoral committee.

In accordance with University, College, and School policies. [GSRR, section 2.4.2](#), the student may make changes in the membership of the Guidance Committee with the School Director. Similarly, the School Director may make changes in the committee, as needed, with the concurrence of the student. In the event that a change in the composition of the Guidance Committee is needed, this change is initiated by submission of a revised GradPlan.

Responsibilities of the Guidance Committee

- Advises graduate students on course plan and research strategy.
- Provides feedback and guidance concerning progress towards degree at least annually.
- Administers exams in a fair and professional manner.
- Reviews research proposals and the dissertation in a timely, constructive, and critical manner.
- Shares responsibility with the Faculty Advisor for reviewing the student's progress and guiding the student toward completion of course and program requirements.
- Meets periodically as needed during the student's course of study, preferably twice per year, including for administration of the comprehensive examination, and the final dissertation defense.
- Provides guidance to help students achieve their career goals.

Graduate Student

The graduate student is responsible for learning and adhering to University, College, and School rules pertaining to graduate study and research, including those outlined in [Academic Programs](#), [Graduate Student Rights and Responsibilities](#), and [Student Rights and Responsibilities](#) at Michigan State University.

Responsibilities of the Graduate Student

- Meet University, College, and School requirements for degree completion, and forming a Guidance Committee that meets University requirements and those outlined in this Graduate Handbook. The student is responsible for reviewing the School of Packaging Graduate Handbook annually in order to ensure they are meeting all responsibilities.
- Form a Guidance Committee that supports the dissertation research as well as career and professional development needs.
- Explore career options and pursue professional development opportunities in support of them
- Follow applicable disciplinary and scholarly codes of ethics in course work and in dissertation research. Honesty and integrity in collecting and maintaining data must be practiced without compromise.
- Maintain high standards of professional behavior and scholarly integrity. Failure to do so can lead to an allegation of misconduct in research and creative activities. Penalties can be severe, including dismissal of students found guilty of plagiarism or data falsification. For additional information see <http://www.rio.msu.edu> and <http://grad.msu.edu/researchintegrity>.
- In particular, there have been a number of cases of scientific misconduct due apparently to unintentional plagiarism. In order to help avoid such instances, MSU provides “iThenticate” antiplagiarism software available on the [Desire2Learn](#) site. More information is available at <http://tech.msu.edu/ithenticate>. Students may request an account which allows them to submit drafts of research articles and grant proposals to be scanned for missed citations and other mistakes that could be characterized as plagiarism, before they are submitted.
- Must obtain applicable regulatory approval for research in the early stages of dissertation work. In particular:
 - Safety training through [Environmental Health & Safety](#) (EHS) must be completed before any laboratory work is begun.
 - Any research involving human subjects or materials of human origin must be approved by HRPP, the [Human Research Protection Program](#), before any such research is initiated. This includes collection of data through surveys. If a student fails to obtain the appropriate prior approval, the dissertation containing such work will not be accepted, and the student will not graduate.
 - Research involving vertebrate animals must be approved by [Institutional Animal Care & Use Committee](#) (IACUC).
- Graduate students are obligated to keep their Faculty Advisor and Guidance Committee apprised on a regular basis of their progress towards completion of the dissertation.

School Director

The School Director shares responsibility with the Guidance Committee and the faculty in fostering the professional and career development of graduate students.

Responsibilities of the School Director

- Monitors the performance of Faculty Advisors and Guidance Committees to ensure that graduate students are receiving appropriate mentoring.
- Works towards the fair resolution of conflicts between graduate students and faculty. In the event that a change of Faculty Advisor and/or Guidance Committee should become necessary, the School Director is responsible for facilitating this change.
- Delegates certain responsibilities such as signatures on GradPlan forms to the Graduate Program Director.

PhD Course Plan Requirements

The student must complete:

Requirements	Credits
1. Complete Either: PKG 805: Advanced Packaging Dynamics or PKG 815: Permeability Shelf Life	3
2. Complete all of the following: PKG 825: Polymeric Packaging Materials	4
PKG 860: Research Methods	3
PKG 985: Analytical Solutions to Packaging Design	3
3. PKG 800-level courses An additional 3 credits excluding PKG 890	3
4. PKG 999: Doctoral Dissertation Research	24-36
5. Collateral Courses Any required collateral courses with GPA of at least 3.0 as designated in admit letter.	
6. Comprehensive Examination Pass both a written and an oral comprehensive examination.	
7. Dissertation Complete a dissertation in a specific area of packaging.	
8. PhD Defense Successfully defend the dissertation	

- Additional courses, beyond PKG 805 or PKG 815, PKG 825, PKG 860 and PKG 985, must be completed as specified by the student's Guidance Committee and indicated in GradPlan.
- It is expected that the program will consist of a minimum of 45 credits.
- Students may not enroll for more than 36 credits of PKG 999. Full time status for a graduate student without an assistantship requires enrollment for 6 credits until the comprehensive examination is completed; it then drops to 1 credit. Therefore, to stay under the 36-credit limit, it is essential for students to complete their comprehensive examination in a timely manner.

Enrollment

All course work must be completed with a minimum GPA of 3.0. Students must be enrolled in the University during the semesters in which comprehensive and final oral examinations are completed. Exceptions may be granted by the Dean of the Graduate School for PhD comprehensive examinations conducted during Summer session, provided the student was enrolled the previous spring semester or the following Fall semester.

- **PhD Defending:** need to be enrolled in at least the minimum of 1 credit the semester they defend, even in the Summer.
- **Comprehensive Exam:** For Fall or Spring must be enrolled in the minimum (6 credits); or if defending in the Summer must be enrolled in at least 1 credit during the Summer.

Full-time Status

In order to be considered full-time for academic purposes, students must carry the minimum number of credits per semester or Summer session as defined below:

- Doctoral without assistantship: 6 credits minimum per semester
- Doctoral with assistantship: 3 credits per semester
- Doctoral student who has passed all required comprehensive exams: 1 credit per semester
- All graduate assistants are classified as full-time students during the semester(s) of their appointments as long as they are enrolled for the minimum required credits for the assistantship.

International Students Online Course Regulations

<https://oiss.isp.msu.edu/immigration1/visa-and-immigration-overview>

- U.S. Immigration Regulations require that only one online or distance learning class per semester can be used to count toward the minimum number of credits needed for full-time enrollment as an F-1 student.
- If the total number of credits of all the in-person classes and one of the online classes are more than the required full-time credits, it is possible to enroll in as many online classes as the student wishes.

Annual Progress Report

Each student is to submit to their Faculty Advisor, by March 31, an [Annual Progress Report](#) on their activities and accomplishments for the preceding period.

Comprehensive Examination

The purpose of the comprehensive examination is for the student to demonstrate both depth of knowledge in the research area and a sound research plan that is reasonable in scope.

The comprehensive examination must be taken by the beginning of the student's 3rd year in the program, unless the student's Guidance Committee requests an extension due to special circumstances, and the School of Packaging Graduate Committee approves that extension. If the student does not pass, they may take the examination a second time the following semester. Students who fail on the second attempt may be dismissed from the program. PhD students must pass the comprehensive examination by the end of their 3rd year in the program. The comprehensive will include a written document and an oral presentation as follows:

Written Document

- A critical review of relevant literature which includes findings, a summary, and an evaluation of information that is relevant to the packaging related problem at hand.
- The proposed research, with preliminary results if available, will be presented in the form of a grant proposal. The student will identify a potential grant opportunity in consultation with their Guidance Committee. The student's Guidance Committee must approve the selected funding agency and the guidelines to be followed for writing the proposal.
- The written comprehensive examination document will be electronically distributed by the student to the Guidance Committee, faculty, and Packaging PhD students at least two weeks before the oral presentation.
- Where intellectual property is a concern, the student will consult with the Guidance Committee to determine the appropriate level of detail to include in the document and oral presentation.

Oral Presentation

- The student will present the literature review and research plan to the faculty and graduate students of the School, in an open seminar to be scheduled by the student at least two weeks in advance for a two-hour block of time during Fall or Spring semester.
- The first hour will consist of an approximately 45-minute presentation by the student, followed by open questions from the students in the audience.
- At the end of the open question period, the graduate student audience will be excused, and there will be a period of questions to the graduate student from the members of the student's Guidance Committee and other School of Packaging faculty.

Evaluation

- At the end of the Guidance Committee's questions, the student will be excused.
- The Guidance Committee and School of Packaging faculty will discuss the student's performance and research plan.
- The Guidance Committee will then vote by open ballot to determine whether the student has passed the examination.
- A passing grade will require not more than one dissenting vote from among MSU regular faculty members of the Guidance Committee.
- A student who fails the comprehensive examination will be allowed to retake the examination the subsequent semester.
- Students who fail for a second time will be dismissed from the program.

Apply for Graduation

<https://www.canr.msu.edu/packaging/graduate-degrees/forms>

In order to be certified to graduate, students must apply for graduation during the semester they anticipate graduating. The applicable form is available online, through the student's portal at student.msu.edu. If the student does not graduate during the intended semester, a new application must be submitted for the new semester of intended graduation.

Final Oral Examination in Defense of the Dissertation

The dissertation defense consists of a presentation of the dissertation research to the Guidance Committee and the students and faculty of the School in an open seminar, followed by a question/answer session about the research.

Written Document

Graduate students are strongly encouraged to prepare one or more submissions for publication, as appropriate, based on their dissertation work. Graduate students are also encouraged to take advantage of opportunities to present their work to professional audiences, such as at meetings of professional societies. PhD students are expected to have at least 1 article submitted to a refereed journal prior to scheduling their dissertation defense.

- A doctoral dissertation must be based on the student's original research and make a significant contribution to knowledge. The research is to be under the direction of and acceptable to the Guidance Committee.
- The student is expected to take a major role in planning, as well as carrying out, the research program.
- Provide "final" copy of dissertation, approved by Faculty Advisor, to the Guidance Committee, in format specified by Graduate School at least 2 weeks prior to defense

Oral Examination

- The final oral examination must be scheduled at least two weeks in advance.
- All faculty and graduate students of the School will be notified of the exam date, time, and location as soon as the exam is scheduled.
- The first part of the oral examination is presentation of a seminar detailing the thesis/dissertation research or the project work. Graduate students are required, and faculty encouraged, to attend these presentations. Members of the public may also attend.
- The second part of the oral examination is an examination of the candidate by the student's Guidance Committee and is followed by a defense of the dissertation.

Dissertation Defense

- Following the final oral examination, the Guidance Committee and the student will meet, which will include additional questions, discussion of necessary revisions in the document, etc.
- The student will then be briefly excused for discussion and vote by the Guidance Committee.
- The student's performance on the final oral examination and dissertation defense must be approved by a three-fourths vote of the Guidance Committee, with not more than one dissenting vote from among the Michigan State University regular faculty members of the committee, for a pass to be awarded.
- Students will be informed immediately whether they have passed or failed the final oral examination and dissertation defense.
- When the PhD final oral examination and dissertation defense are completed, the Faculty Advisor and members of the Guidance Committee will sign the appropriate form, indicating the results.
- Students must be registered in the semester in which the final oral examination is taken.

Submitting the Dissertation

The student must submit an acceptable doctoral dissertation. These must be submitted electronically via ProQuest after final approval by the Faculty Advisor and the Guidance Committee. Instructions for electronic submission of dissertations are available from The Graduate School.

Electronic Theses and Dissertation Submissions (ETD)

<https://grad.msu.edu/etd>

Submission Deadline

- Each semester has a deadline for the initial submission of theses and dissertations to ProQuest. The deadline is generally two weeks prior to the final deadline. Plan your defense accordingly.
- The document submitted to ProQuest is expected to be a final version, meaning it has been successfully defended, Guidance Committee corrections have been made, and there are **no more content changes**.
- The Graduate School will not accept documents for review for the current semester after 5:00PM ET on the submission deadline date.

Final Deadline

- Each semester has a final deadline where documents have been accepted and delivered for publishing, all required paperwork has been turned in, all milestones have been completed and all degree audits have been completed.
- Your document must be accepted and delivered to the publisher, ProQuest, by 5:00PM ET on the final deadline date.

Supplemental Material

- If supplemental material is to be submitted in addition to the main body of a dissertation, these supplemental materials will not be reviewed by the Graduate School for formatting requirements, but they must be acceptable by ProQuest and comply with ProQuest's criteria and storage limits. All supplemental materials need the approval of the dissertation committee chair on the ETD approval form.

Additional Information

- It is common to use previously published articles where the student was the primary author in a dissertation. This should first be discussed with the student's guidance committee.
- It should be noted that submission of the dissertation is not the same as approval.
- There is an interactive review process, and final approval can take anywhere from a few hours to weeks, depending upon the extent of the necessary revisions and the diligence of the student in completing the changes.
- The review by the Graduate School focuses on requirements for proper formatting and completion of all required forms. It is not a content review of the dissertation.
- Students must provide an electronic copy of their final approved dissertation to their Faculty Advisor. Students must also provide copies of all data and other relevant materials to their Faculty Advisor.

Requests for Hold/Embargo on Publication of Documents Submitted to ProQuest

Sometimes students may wish to put a hold/embargo on the online publishing of their dissertation for a brief period of time in order to obtain a patent or submit the work for publication. A request for an embargo of up to 2 years may be made using this [online form](#).

For questions regarding embargoes, please contact the Graduate School at msuetds.approval@grd.msu.edu or at (517) 353-3220.

An embargo is a hold on publication of an author's thesis or dissertation for a specified length of time. The options for length of embargo authorized by Michigan State University are 1 year or 2 years. When an embargo has been approved by your Faculty Advisor and college Associate Dean, the Graduate School will notify ProQuest and the MSU library. ProQuest will release the document for publication once the embargo period has expired.

Creating an Open Researcher and Contributor ID (ORCID)

At the time of submission to ProQuest, authors now have the opportunity to create an ORCID that provides researchers with a unique identifier for linking their research outputs and activities. An ORCID:

- Improves recognition of research contributions
- Reduces form-filling (enter data once, re-use it often)
- Works with many institutions, funders, and publishers
- Is a requirement of many journal manuscript submission systems and grant application forms.

To learn more about ORCID go to: <https://vimeo.com/237730655>

Previously submitted dissertations are available for review through the MSU Library.

Dual Major Doctoral Degree

<https://grad.msu.edu/dual-doctoral-major-request>

All dual major doctoral degrees must be approved by the Dean of the Graduate School. A request for the dual major degree must be submitted via GradPlan within one semester following its development and within the first two years of the student's enrollment at Michigan State University. In order to receive a dual major doctoral degree, the student must have an identified Faculty Advisor from both programs, and the following conditions must be met:

- The intent to receive the degree in two areas must be outlined in an agreed upon [Memorandum of Understanding \(MOU\)](#) by both doctoral programs.
- The Guidance Committee will include members from both doctoral programs.
- The PhD GradPlan must reflect the required standards for both doctoral programs.
- The integrated course work must be satisfactory to both doctoral programs and meet the requirements for awarding of a degree in both programs.
- The comprehensive examination must be passed to the satisfaction of both doctoral programs.
- Responsible and Ethical Conduct of Research (RECR) requirements will be approved by the Guidance Committee; they should meet the RECR requirements in both doctoral programs.
- There must be a single dissertation that represents an integration of the two disciplinary areas.
- Guidance Committee members from both doctoral programs must be satisfied that the dissertation represents a contribution meeting the usual standards in both areas.

Required Information

1. Name of primary degree program (most likely your current major)
2. Name of secondary degree program (PKG PHD)
3. List of guidance committee members, including their departmental/programmatic affiliation
4. Coursework that fulfills the requirements of the primary major
5. Coursework that fulfills the requirements of the secondary major
6. RECR requirements
7. Examination areas and an explanation of their relation to both areas and to examination requirements in each program
8. Proposed dissertation area, with an explanation of how the research incorporates aspects of both fields
9. Signatures from the guidance committee chair, grad programs directors from each program, and the college associate deans from the appropriate areas
10. Additional information may be required by the participating programs.

Summary of PhD Requirements with Due Dates

	Year 1	Year 2	Year 3	Year 4	Year 5
	Semester	Semester	Semester	Semester	Semester
Identify Research Faculty Advisor Time of Admission	Fall				
Meet with Faculty Advisor	Fall	Fall	Fall	Fall	Fall
Annual Progress Report Due March 31 st each year	Spring	Spring	Spring	Spring	Spring
Guidance Committee End of first year	Spring				
GradPlan in SIS	Spring				
GradPlan Review		Spring	Spring	Spring	Spring
Dissertation Topic Identified End of first year	Spring				
RECR/CITI Modules	Spring	Spring	Spring	Spring	Spring
GPA Review (3.0)	Fall Spring	Fall Spring	Fall Spring	Fall Spring	Fall Spring
Remove Provisional Status Complete requirements, if applicable, by end of first year or date specified.	Spring				
Schedule and Pass Comprehensive Exam https://www.canr.msu.edu/packaging/graduate-degrees/forms			Fall		
Submit Publication to a Refereed Journal	Before scheduling dissertation defense				
Schedule Final Oral Exam/Defense 2 weeks prior to defense https://www.canr.msu.edu/packaging/graduate-degrees/forms - degree	Final Semester				
Apply for Graduation https://www.canr.msu.edu/packaging/graduate-degrees/forms - ETD	Final Semester				

Program Checklist

Before Beginning to Work in Laboratories

- Complete Application to Work in SoP Laboratory ([Appendix 5](#))
- Complete [EHS safety training](#) and any other required training

Before Beginning Research Involving Human Subjects/Vertebrates

- Obtain [Human Research Protection Program](#) (HRPP), and/or [Institutional Animal Care & Use Committee](#) (IACUC) approval, if applicable

End of First Year and Annual Refresher

- Complete SoP responsible conduct of research, scholarship, and creative activities training.

End of First Year or Date Specified

- Complete requirements to remove “provisional” status, if applicable

As Announced

- Attend School of Packaging seminars

March 31st Each Year

- Submit [Annual Progress Report](#) to Faculty Advisor.

Prior to Defense

- Provide final copy of dissertation approved by Faculty Advisor, to **Committee**.
- Schedule [final oral examination](#) at least 2 weeks prior to defense.

Graduation

- Apply for graduation early in semester anticipated.
- Complete the Graduate School exit survey.
- Complete any required [collateral courses](#) with GPA of at least 3.00.
- Complete course requirements specified in the GradPlan form.
- Complete all course work with GPA at least 3.0
- Meet residency requirement.
- Pass final oral examination (must be enrolled at MSU the semester the exam is completed))
- Complete dissertation revisions.
- Submit electronic copy of dissertation via ProQuest and complete necessary corrections for acceptance.
- Provide Faculty Advisor with copy of accepted dissertation, along with copies of all data and other relevant materials.
- Complete all requirements within 8 years.

Before Leaving Campus

- Clean out and relinquish desk; turn in keys (if applicable).
- Clean up laboratory, properly dispose of research materials or pass on to Faculty Advisor or new user, complete laboratory checkout form.
- Determine repository for original research data with Faculty Advisor.
- Leave forwarding addresses and telephone numbers, both work and residence.

Optional

- Provide salary information for statistical compilation.

Graduate School Exit Survey

<https://grad.msu.edu/etd>

We strongly urge all graduating students to complete the short online exit survey. It takes about 5-10 minutes to complete the online survey. Only students who have applied for graduation have access. The Graduate School uses data from this survey when reviewing graduate programs and to guide decisions about services and initiatives for graduate students.

Survey of Earned Doctorates (SED): Doctoral Students ONLY

<https://grad.msu.edu/etd>

PhD students are also asked to complete the SED Survey. The Survey of Earned Doctorates is the definitive source of information on the nation's new research doctorates. Sponsored by the National Science Foundation and five other federal agencies and conducted by RTI, the SED is critical to the understanding in what specialty areas doctorates are produced and their post-graduation employment plans.

MS PLAN A: THESIS PROGRAM

GRADUATE PROGRAM STUDENT HANDBOOK

2024-2025

MS PLAN A: DEGREE REQUIREMENTS

MS Plan A: Thesis is a residential program only.

Plan	Sub-Plan	Note
MS Plan A:	Thesis	Coursework/Residential
MS Plan B:	Non-Thesis	Coursework/Residential
MS Plan B:	Non-Thesis	Coursework/Online

All students must meet the University and College requirements as stated in the current [Academic Programs](#) publication. Such regulations appear in the section on University Graduate Degree Programs and in the section devoted to the regulations of the College of Agriculture and Natural Resources, as well as in the section for the School of Packaging. Each student is responsible for understanding these regulations. Some of these, along with the School of Packaging requirements, are outlined below.

Residency and Time Limits

Residency requirements and time limits shall be as published in the current issue of the [Academic Programs](#) catalog. A minimum of 6 credits in the degree program must be earned in residence on the East Lansing campus or at approved Michigan State University instructional sites, but many programs require more. Requests for waivers of this requirement must be submitted by the department or school responsible for the degree program to the appropriate college and then to the Dean of the Graduate School.

Unless otherwise specified, the time limit for the completion of the requirements for the MS Plan A: Thesis degree is 5 calendar years from the date of matriculation into the degree program.

English Language Proficiency

International students admitted provisionally due to English Language deficiencies must correct that deficiency within two consecutive semesters. Such students will be required to take courses at the English Language Center and will be restricted in the number (if any) of academic courses they will be allowed to take.

Students admitted provisionally for other reasons will be required to meet the conditions specified in the student's admission letter.

Specializations

Michigan State University offers the opportunity for students to formally specialize in a multidisciplinary area, primarily through completion of a set of courses, in addition to meeting the requirements for the degree in the student's major. Completion of a specialization is noted on the student's transcript. A complete list of [graduate specializations](#) is available through the Office of the Registrar.

Statistics

All graduate students must demonstrate an understanding of statistics. This requirement can be met by an appropriate course as part of the MS program, or by having taken a basic statistics course as an undergraduate.

Education Abroad

On approval of the Guidance Committee, one 3-4 credit overseas study program may be used as part of the MS program. The policy of the School of Packaging is that a second of such a program may not be used as part of the 30 required MS credits.

Policy Changes

When policies are changed, students who have been admitted before the change in policy have the right to choose to comply with the new policy or to complete the requirements following the policy that was in place when they were admitted.

GradPlan

The University requires electronic submission and approval for all MS Plan A: Thesis student program planning and reporting, as well as thesis submission. It is the responsibility of the student to initiate the filing of the program plan at <https://grad.msu.edu/gradplan>. After consulting with the Faculty Advisor and Guidance Committee, the student is to complete their program electronically in the GradPlan.

GradPlan must be completed by no later than the end of the student's third semester (excluding Summer). It identifies the Faculty Advisor and Guidance Committee, in addition to the course plan the student is required to complete (excluding [collateral courses](#)), and whether any LLE and Shared Program credits will be included in the program. Once the student submits the plan through Campus Solutions (SIS) for approval, electronic circulation is routed for approvals. Individuals who need to approve are notified by email.

Modifications to the program, including the composition of the Guidance Committee, require approval of the student, Faculty Advisor, committee members, the School Director and the Dean, through submission of an official modification to the program using GradPlan. If the student should choose to enroll in courses not in the course plan, they should be aware that the course may not count toward graduate program requirements. Courses may not be added to or subtracted from a previously approved course plan after a final grade has been awarded. All courses taken before completion of the initial GradPlan are considered part of the student's academic course plan. A hold will be put on the academic account of any student who is delinquent in completing GradPlan.

Faculty Advisor

Each student will select and be accepted by a Faculty Advisor from the regular faculty of the School of Packaging, to serve as the student's advisor and guide their thesis work. Dr. Amy Radford-Popp, Graduate Program Director will serve as the student's advisor for all MS Plan A: Thesis students until a Faculty Advisor is chosen. The Faculty Advisor must be chosen before completion of 13 program credits.

The Graduate Program Director will, upon request, direct applicants to faculty working in the student's areas of interest. A listing of faculty and their interest areas is also provided in [Appendix 2](#), and information about faculty and their research areas is available on the School of Packaging website at <http://www.canr.msu.edu/packaging/faculty>. The choice of a Faculty Advisor is a mutual decision between the student and the faculty member.

Students may change Faculty Advisors, if they wish to do so, provided they reach an agreement with another faculty member to serve in that capacity. The (electronic) signature of the School Director on the student's GradPlan constitutes approval of the selection of the Faculty Advisor.

If the Faculty Advisor should leave the School of Packaging after the GradPlan is established and approved, the student has the right to continue the approved GradPlan under the supervision of a new Faculty Advisor. The program may be changed only if it is the student's wish to do so.

If the Faculty Advisor leaves the University before the student's degree program is completed, the student, Faculty Advisor, and Graduate Program Director shall discuss the situation and determine whether the Faculty Advisor will continue to serve in that role, or whether a new Faculty Advisor must be selected. If the Faculty Advisor has left the University on a status other than retirement, generally a new Faculty Advisor must be selected, although the current Faculty Advisor may continue to serve on the Guidance Committee in a supplementary role. In such cases, the Graduate Program Director will assist the student in selection of a new Faculty Advisor and ensure that the student's right to continue their program is protected. An emeritus faculty member may continue to serve as a student's Faculty Advisor.

Responsibilities of the Faculty Advisor

Faculty advising of all graduate students should be consistent with the [Guidelines for Graduate Student Mentoring and Advising](#). The Faculty Advisor:

- Ensures that graduate students receive information about requirements and policies of the graduate program (e.g., advising graduate students on developing a program plan, including selection of Guidance Committee members, including appropriate course plans, research strategy or creative activity, and on available resources)
- Provides training and oversight in creative activities, research rigor, theoretical and technical aspects of the thesis research, and in professional integrity and research ethics.
- Advises graduate students on the selection of a thesis topic with realistic prospects for successful completion within an appropriate time frame and on the formation of a guidance committee.
- Encourages the graduate student to stay abreast of the literature and cutting-edge developments in the field. Assist with developing professional skills in writing reports, papers, and grant proposals, making professional presentations, establishing professional networks, interviewing, and evaluating manuscripts and papers.
- Provides regular feedback on the progress of graduate students toward degree completion (e.g., providing feedback on research or creative activities, course plan, and teaching, and constructive criticism if the progress does not meet expectations, completion of [annual progress reports](#)).
- Helps the graduate student develop into a successful professional and colleague, including encouraging the student to participate and disseminate results of research in the appropriate scholarly or public forums.
- Facilitates career development and exploration, including advising on appropriate job, internship, and career options, as well as on the preparation of application materials for appropriate fellowship, scholarship, and other relevant opportunities
- Writes letters of reference for appropriate fellowship, scholarship, award, and job opportunities.

- Provides for supervision and advising of graduate students when the Faculty Advisor is on leave or extended absence
- Assists the graduate student in navigating disagreements among the Guidance Committee.

Guidance Committee

The Guidance Committee must be completed in GradPlan by no later than the end of the student's third semester (excluding Summer). Students will obtain approval and assistance from their Faculty Advisor in forming the committee. It is strongly recommended that students prepare a thesis proposal for review by committee members prior to beginning their research or shortly thereafter. This is especially valuable as a document to submit to prospective committee members, and as a starting point for outlining the precise research work to be accomplished for the degree.

The approval of the School Director on the electronic GradPlan constitutes approval of the membership of the Guidance Committee. The Guidance Committee must consist of at least three regular faculty members:

- Two must be School of Packaging faculty (including the Faculty Advisor)
- One must be **from another department within MSU, or from outside the MSU community with special approval.** *Faculty with joint appointments can be considered outside members if their appointment is less than 50% in the School.*

Michigan State University policy provides that the Faculty Advisor (chair of the Guidance Committee) and faculty members of Guidance Committees be regular Michigan State University faculty, except as noted in what follows.

- Regular faculty are defined as tenure system faculty.
- Non-tenure-system faculty may serve as Faculty Advisors and as members of Guidance Committees with the approval of the Dean of the Graduate School.
- Emeritus faculty may serve as members of Guidance Committees and may continue to serve as Faculty Advisors with the approval of the School Director.
- While University policy allows specialists to serve as members or chairs of Guidance Committees with the approval of the Graduate School, the School of Packaging does not generally approve such service, except as an additional member of the committee, beyond the minimum required number.
- In general, no more than 1 non-regular faculty member may serve on a Master's committee.

In accordance with University, College, and School policies. [GSRR, section 2.4.2](#), the student may make changes in the membership of the Guidance Committee with the School Director. Similarly, the School Director may make changes in the committee, as needed, with the concurrence of the student. In the event that a change in the composition of the Guidance Committee is needed, this change is initiated by submission of a revised GradPlan.

Responsibilities of the Guidance Committee

- Advises graduate students on course plan and research strategy.
- Provides feedback and guidance concerning progress towards degree at least annually.
- Administers exams in a fair and professional manner.
- Reviews research proposals and the thesis in a timely, constructive, and critical manner.
- Shares responsibility with the Faculty Advisor for reviewing the student's progress and guiding the student toward completion of course and program requirements.
- Meets periodically as needed during the student's course of study, preferably twice per year, including for the final thesis defense.
- Provides guidance to help students achieve their career goals.

Graduate Student

The graduate student is responsible for learning and adhering to University, College, and School rules pertaining to graduate study and research, including those outlined in [Academic Programs](#), [Graduate Student Rights and Responsibilities](#), and [Student Rights and Responsibilities](#) at Michigan State University.

Responsibilities of the Graduate Student

- Meet University, College, and School requirements for degree completion, and forming a Guidance Committee that meets University requirements and those outlined in this Graduate Handbook. The student is responsible for reviewing the School of Packaging Graduate Handbook annually in order to ensure they are meeting all responsibilities.
- Form a Guidance Committee that supports the thesis research as well as career and professional development needs.
- Explore career options and pursue professional development opportunities in support of them.
- Follow applicable disciplinary and scholarly codes of ethics in course work and in thesis research. Honesty and integrity in collecting and maintaining data must be practiced without compromise.
- Maintain high standards of professional behavior and scholarly integrity. Failure to do so can lead to an allegation of misconduct in research and creative activities. Penalties can be severe, including dismissal of students found guilty of plagiarism or data falsification. For additional information see <http://www.rio.msu.edu> and <http://grad.msu.edu/researchintegrity>.
- In particular, there have been a number of cases of scientific misconduct due apparently to unintentional plagiarism. In order to help avoid such instances, MSU provides "iThenticate" antiplagiarism software available on the [Desire2Learn](#) site. More information is available at <http://tech.msu.edu/ithenticate>. Students may request an account which allows them to submit drafts of research articles and grant proposals to be scanned for missed citations and other mistakes that could be characterized as plagiarism, before they are submitted.

- Must obtain applicable regulatory approval for research in the early stages of thesis work. In particular:
 - Safety training through [Environmental Health & Safety](#) (EHS) must be completed before any laboratory work is begun.
 - Any research involving human subjects or materials of human origin must be approved by HRPP, the [Human Research Protection Program](#), before any such research is initiated. This includes collection of data through surveys. If a student fails to obtain the appropriate prior approval, the thesis containing such work will not be accepted, and the student will not graduate.
 - Research involving vertebrate animals must be approved by [Institutional Animal Care & Use Committee](#) (IACUC).
- Graduate students are obligated to keep their Faculty Advisor and Guidance Committee apprised on a regular basis of their progress towards completion of the thesis.

School Director

The School Director shares responsibility with the Guidance Committee and the faculty in fostering the professional and career development of graduate students.

Responsibilities of the School Director

- Monitors the performance of Faculty Advisors and Guidance Committees to ensure that graduate students are receiving appropriate mentoring.
- Works towards the fair resolution of conflicts between graduate students and faculty. In the event that a change of Faculty Advisor and/or Guidance Committee should become necessary, the School Director is responsible for facilitating this change.
- Delegates certain responsibilities such as signatures on GradPlan forms to the Graduate Program Director.

MS Plan A: Thesis Course Requirements

A total of 30 credits is required for the MS Plan A: Thesis degree. The student's course plan must be approved by the student's Faculty Advisor and Guidance Committee. The student must:

- Demonstrate an understanding of basic statistics.
- Complete 15 credits in Packaging courses at the 400-level or above.
- Ensure that half of the 30 credits required for the degree are at the 800-level or above.

PKG Courses at the 400-level or above	More than half of the 30 credits at the 800-level or above
1-15 Credits	16 Credits
Core Courses	Core Courses
<p>PKG 825 (4): Polymeric Packaging Materials PKG 860 (3): Research Methods</p> <p>Either: PKG 805 (3): Advanced Packaging Dynamics PKG 815 (3): Permeability Shelf Life</p>	
<p>PKG 800-900 level (3 credits) excluding Packaging 888, 890, and 899</p>	
<p>PKG 899 (6-8): Master's Thesis Research</p>	
Optional Elective Courses	Optional Elective Courses
<p>PKG 411 (3): PKG Dev Tech PKG 421 (3): Virtual Design/Prototyping PKG 430 (3): Packaging-FMCG PKG 450 (2): Automotive/Industrial PKG PKG 452 (4): Medical Packaging PKG 455 (4): Food Packaging PKG 456 (3): PKG Shelf Life/Perish Food PKG 465 (3): Packaging Value Chain PKG 470 (3): Packaging Sustainability PKG 477 (3): Hazardous Materials PKG PKG 493 (3): Professional Internship-PKG</p>	<p>PKG 814 (3): PKG for Food Safety PKG 817 (4): Instruments/Analysis PKG Mat PKG 840 (3): Anti-Counterfeit Strategy PKG 850 (3): PKG Value Chain PKG 875 (3): Stability/Recyclability PKG Mat PKG 880 (3): Life Cycle Assessment PKG 890 (1-3): Independent Study PKG 891 (1-4): Selected Topics</p> <p>Or other 800-level courses recommended by the Guidance Committee</p>
<p>Collateral Courses Any required collateral courses with GPA of at least 3.0 as designated in admit letter.</p>	
<p>Thesis Complete a thesis in a specific area of packaging.</p>	
<p>Thesis Defense Successfully defend the thesis</p>	

Coursework

All course work must be completed with a minimum GPA of 3.0. Students must be enrolled in the University during the semesters in which final oral examinations are completed. Exceptions may be granted by the Dean of the Graduate School for MS final oral examinations conducted during Summer session, provided the student was enrolled the previous spring semester or the following Fall semester.

MS Plan A: Thesis students defending (thesis or oral exam): need to be enrolled the semester they defend in at least 1 credit. Unless it is Summer, in that case, they need to be enrolled in at least 1 credit in the previous spring or 1 credit the following Fall semester.

Full-time Status

In order to be considered full-time for academic purposes, students must carry the minimum number of credits per semester or Summer session as defined below:

- Masters without assistantship: 9 credits minimum per semester
- Masters with assistantship: 6 credits minimum per semester
- All graduate assistants are classified as full-time students during the semester(s) of their appointments as long as they are enrolled for the minimum required credits for the assistantship.

International Students Online Course Regulations

<https://oiss.isp.msu.edu/immigration1/visa-and-immigration-overview>

- U.S. Immigration Regulations require that only one online or distance learning class per semester can be used to count toward the minimum number of credits needed for full-time enrollment as an F-1 student.
- If the total number of credits of all the in-person classes and one of the online classes are more than the required full-time credits, it is possible to enroll in as many online classes as the student wishes.

Annual Progress Report

Each student is to submit to their Faculty Advisor, by March 31, an [Annual Progress Report](#) on their activities and accomplishments for the preceding period.

Apply for Graduation

<https://www.canr.msu.edu/packaging/graduate-degrees/forms>

In order to be certified to graduate, students must apply for graduation during the semester they anticipate graduating. The applicable form is available online, through the student's portal at student.msu.edu. If the student does not graduate during the intended semester, a new application must be submitted for the new semester of intended graduation.

Final Oral Examination in Defense of the Thesis

The thesis defense consists of a presentation of the thesis research to the Guidance Committee and the students and faculty of the School in an open seminar, followed by a question/answer session about the research.

Written Document

Graduate students are strongly encouraged to prepare one or more submissions for publication, as appropriate, based on their thesis work. Graduate students are also encouraged to take advantage of opportunities to present their work to professional audiences, such as at meetings of professional societies. MS Plan A: Thesis students are strongly encouraged to have at least 1 article submitted to a refereed journal prior to scheduling their thesis defense.

- The MS thesis must be based on the student's original research and make a significant contribution to knowledge. The research is to be under the direction of and acceptable to the Guidance Committee.
- The student is expected to take a major role in planning, as well as carrying out, the research program.
- A master's thesis represents the student's original effort but constitutes a less significant body of work than a dissertation, and usually involves a greater degree of direction by the Faculty Advisor and the Guidance Committee.
- Provide a "final" copy of thesis, approved by Faculty Advisor, to the Guidance Committee, in format specified by Graduate School at least 2 weeks prior to defense.

Oral Examination

- The final oral examination must be scheduled at least two weeks in advance.
- All faculty and graduate students of the School will be notified of the exam date, time, and location as soon as the exam is scheduled.
- The first part of the oral examination is a seminar presentation detailing the thesis research or the project work. Graduate students are required, and faculty encouraged, to attend these presentations. Members of the public may also attend.
- The second part of the oral examination is an examination of the candidate by the student's Guidance Committee and is followed by a defense of the thesis.

Thesis Defense

- Following the final oral examination, the Guidance Committee and the student will meet, which will include additional questions, discussion of necessary revisions in the document, etc.
- The student will then be briefly excused for discussion and a vote by the Guidance Committee.
- The student's performance on the final oral examination and thesis defense must be approved by a majority vote of the Guidance Committee.
- Students will be informed immediately whether they have passed or failed the final oral examination and thesis defense.
- When the MS final oral examination and thesis defense are completed, the Faculty Advisor and members of the Guidance Committee will sign the appropriate form, indicating the results.
- Students must be registered in the semester in which the final oral examination is taken.

Submitting the Thesis

The student must submit an acceptable MS thesis. These must be submitted electronically via ProQuest after final approval by the Faculty Advisor and the Guidance Committee. Instructions for electronic submission of theses are available from The Graduate School.

Electronic Theses and Dissertation Submissions (ETD)

<https://grad.msu.edu/etd>

Submission Deadline

- Each semester has a deadline for the initial submission of theses and dissertations to ProQuest. The deadline is generally two weeks prior to the final deadline. Plan your defense accordingly.
- The document submitted to ProQuest is expected to be a final version, meaning it has been successfully defended, Guidance Committee corrections have been made, and there are **no more content changes**.
- The Graduate School will not accept documents for review for the current semester after 5:00PM ET on the submission deadline date.

Final Deadline

- Each semester has a final deadline where documents have been accepted and delivered for publishing, all required paperwork has been turned in, all milestones have been completed and all degree audits have been completed.
- Your document must be accepted and delivered to the publisher, ProQuest, by 5:00PM ET on the final deadline date.

Supplemental Material

- If supplemental material is to be submitted in addition to the main body of a thesis, these supplemental materials will not be reviewed by the Graduate School for formatting requirements, but they must be acceptable by ProQuest and comply with ProQuest's criteria and storage limits. All supplemental materials need the approval of the thesis committee chair on the ETD approval form.

Additional Information

- It is common to use previously published articles where the student was the primary author in a thesis. This should first be discussed with the student's Guidance Committee.
- It should be noted that submission of the thesis is not the same as approval.
- There is an interactive review process, and final approval can take anywhere from a few hours to weeks, depending upon the extent of the necessary revisions and the diligence of the student in completing the changes.
- The review by the Graduate School focuses on requirements for proper formatting and completion of all required forms. It is not a content review of the thesis.
- Students must provide an electronic copy of their final approved thesis to their Faculty Advisor. Students must also provide copies of all data and other relevant materials to their Faculty Advisor.

Requests for Hold/Embargo on Publication of Documents Submitted to ProQuest

Sometimes students may wish to put a hold/embargo on the online publishing of their thesis for a brief period of time in order to obtain a patent or submit the work for publication. A request for an embargo of up to 2 years may be made using this [online form](#).

For questions regarding embargoes, please contact the Graduate School at msuetds.approval@grd.msu.edu or at (517) 353-3220.

An embargo is a hold on publication of an author's thesis or dissertation for a specified length of time. The options for length of embargo authorized by Michigan State University are 1 year or 2 years. When an embargo has been approved by your Faculty Advisor and college Associate Dean, the Graduate School will notify ProQuest and the MSU library. ProQuest will release the document for publication once the embargo period has expired.

Creating an Open Researcher and Contributor ID (ORCID)

At the time of submission to ProQuest, authors now have the opportunity to create an ORCID that provides researchers with a unique identifier for linking their research outputs and activities. An ORCID:

- Improves recognition of research contributions
- Reduces form-filling (enter data once, re-use it often)
- Works with many institutions, funders, and publishers
- Is a requirement of many journal manuscript submission systems and grant application forms.

To learn more about ORCID go to: <https://vimeo.com/237730655>

Previously submitted theses/dissertations are available for review through the MSU Library.

Summary of MS Requirements with Due Dates

The following chart is based on students starting their program Fall semester.

Year	Year 1	Year 2	Year 3	Year 4	Year 5
	Semester	Semester	Semester	Semester	Semester
Identify Research Faculty Advisor Before completion of 13 degree credits	Spring				
Meet with Faculty Advisor		Fall	Fall	Fall	Fall
Annual Progress Report Due March 31 st each year	Spring	Spring	Spring	Spring	Spring
Guidance Committee No later than the end of third semester		Fall			
GradPlan in SIS	Spring				
GradPlan Review		Spring	Spring	Spring	Spring
Thesis Topic No later than the end of third semester		Fall			
RECR/CITI Modules	Spring	Spring	Spring	Spring	Spring
GPA Review (3.0)	Fall, Spring	Fall, Spring	Fall, Spring	Fall, Spring	Fall, Spring
Remove Provisional Status Complete requirements, if applicable, by end of first year or date specified.	Spring				
Schedule Final Oral Exam/Defense 2 weeks prior to defense	Final Semester				
Apply for Graduation	Final Semester				

Requirement**Before Beginning to Work in Laboratories**

- ___ Complete Application to Work in SoP Laboratory ([Appendix 5](#))
- ___ Complete [EHS safety training](#) and any other required training

Before Beginning Research Involving Human Subjects/Vertebrates

- ___ Obtain [Human Research Protection Program](#) (HRPP), and/or [Institutional Animal Care & Use Committee](#) (IACUC) approval, if applicable

End of First Year or Date Specified

- ___ Complete requirements to remove “provisional” status, if applicable

End of First and Second Year

- ___ Complete SoP responsible conduct of research, scholarship, and creative activities training (CITI modules).

As Announced

- ___ Attend School of Packaging seminars

March 31st Each Year

- ___ Submit [Annual Progress Report](#) to Faculty Advisor.

Prior to Defense

- ___ Provide “final” copy of thesis, approved by Faculty Advisor, to committee in format specified by Graduate School
- ___ [Schedule oral examination](#) at least 2 weeks prior to defense

Graduation

- ___ Apply for graduation early in semester anticipated
- ___ Complete the Graduate School exit survey
- ___ Complete any required [collateral courses](#) with GPA of at least 3.00
- ___ Complete all course requirements specified in the GradPlan form, not including [collaterals](#).
- ___ Complete all course work with GPA of at least 3.0
- ___ Meet residency requirement, minimum 6 credits earned on campus
- ___ Pass oral examination (must be enrolled at MSU the semester the exam is completed)
- ___ Complete thesis revisions, submit electronic copy via ProQuest, complete necessary corrections for acceptance
- ___ Submit 1 copy of accepted version to the Faculty Advisor with copies of all data and other relevant materials
- ___ Complete all requirements within 5 years

Before Leaving Campus

- ___ Clean out and relinquish desk; turn in keys (if applicable)
- ___ Clean up laboratory, properly dispose of research materials or pass on to Faculty Advisor or new user, complete laboratory checkout form
- ___ Determine repository for original research data with Faculty Advisor
- ___ Leave forwarding addresses and telephone numbers, both work and residence

Optional

- ___ Provide salary information for statistical compilation

Graduate School Exit Survey

<https://grad.msu.edu/etd>

We strongly urge all graduating students to complete the short online exit survey. It takes about 5-10 minutes to complete the online survey. Only students who have applied for graduation have access. The Graduate School uses data from this survey when reviewing graduate programs and to guide decisions about services and initiatives for graduate students.

MS PLAN B: NON-THESIS (Residential or Online) PROGRAMS

GRADUATE PROGRAM STUDENT HANDBOOK

2024-2025

MS PLAN B: DEGREE REQUIREMENTS

Both MS Plan B: Non-Thesis Residential and Online programs are available.

Plan	Sub-Plan	Note
MS Plan A:	Thesis	Coursework/Residential
MS Plan B:	Non-Thesis	Coursework/Residential
MS Plan B:	Non-Thesis	Coursework/Online

Terms of Use

- **Residential:** Students in the MS Plan B: Non-Thesis program who take courses in both in-person and online modalities.
- **Online:** Designates students in the MS Plan B: Non-Thesis program who take courses in the online modality only.

**Indicates information for Residential students only.*

All students must meet the University and College requirements as stated in the current *Academic Programs* publication. Such regulations appear in the section on University Graduate Degree Programs and in the section devoted to the regulations of the College of Agriculture and Natural Resources, as well as in the section for the School of Packaging. Each student is responsible for understanding these regulations. Some of these, along with the School of Packaging requirements, are outlined below.

Residency*

Residency requirements and time limits shall be as published in the current issue of the [Academic Programs](#) catalog. A minimum of 6 credits in the degree program must be earned in residence on the East Lansing campus or at approved Michigan State University instructional sites, but many programs require more. Requests for waivers of this requirement must be submitted by the department or school responsible for the degree program to the appropriate college and then to the Dean of the Graduate School.

Time Limits

Unless otherwise specified, the time limit for the completion of the requirements for the MS Plan B: Non-Thesis degree is 5 calendar years from the date of matriculation into the degree program.

English Language Proficiency

International students admitted provisionally due to English Language deficiencies must correct that deficiency within two consecutive semesters. Such students will be required to take courses at the English Language Center and will be restricted in the number (if any) of academic courses they will be allowed to take.

Students admitted provisionally for other reasons will be required to meet the conditions specified in the student's admission letter.

Specializations

Michigan State University offers the opportunity for students to formally specialize in a multidisciplinary area, primarily through completion of a set of courses, in addition to meeting the requirements for the degree in the student's major. Completion of a specialization is noted on the student's transcript. A complete list of [graduate specializations](#) is available through the Office of the Registrar.

Statistics

All graduate students must demonstrate an understanding of statistics. This requirement can be met by an appropriate course as part of the MS program, or by having taken a basic statistics course as an undergraduate.

Education Abroad

On approval of the Guidance Committee, one 3-4 credit overseas study program may be used as part of the MS program. The policy of the School of Packaging is that a second of such a program may not be used as part of the 30 required MS credits.

Policy Changes

When policies are changed, students who have been admitted before the change in policy have the right to choose to comply with the new policy or to complete the requirements following the policy that was in place when they were admitted.

GradPlan

<https://grad.msu.edu/gradplan>

The University requires electronic submission and approval for all MS Plan B: Non-Thesis student program planning and reporting. Students must also submit a Capstone Paper to the School of Packaging. After consulting with the Faculty Advisor, it is the student's responsibility to complete their program electronically in GradPlan.

GradPlan must be completed by no later than the end of the student's third semester (excluding Summer). It identifies the Faculty Advisor and Guidance Committee, in addition to the course plan the student is required to complete (excluding collateral courses), and whether any LLE and Shared Program credits have been approved for the program. Once the student submits the plan through Campus Solutions (SIS) for approval, electronic circulation is routed for approvals. Individuals who need to approve are notified by email.

Modifications to the program require approval of the student, Faculty Advisor, committee members, the School Director and the Dean, through submission of an official modification to the program using GradPlan. If the student should choose to enroll in courses not in the course plan, they should be aware that the course may not count toward graduate program requirements. Courses may not be added to or subtracted from a previously approved course plan after a final grade has been awarded. All courses taken before completion of the initial GradPlan are considered part of the student's academic course plan. A hold will be put on the academic account of any student who is delinquent in completing GradPlan.

Faculty Advisor

For students in the MS Plan B: Non-Thesis program, the Graduate Program Director serves as the student's Faculty Advisor for the length of their program.

If the Faculty Advisor should leave the School of Packaging after the GradPlan is established and approved, the student has the right to continue the approved GradPlan under the supervision of a new Faculty Advisor. The program may be changed only if it is the student's wish to do so.

If the Faculty Advisor leaves the University before the student's degree program is completed, the student, Faculty Advisor, and School Director shall discuss the situation and determine whether the Faculty Advisor will continue to serve in that role, or whether a new Faculty Advisor must be selected. If the Faculty Advisor has left the University on a status other than retirement, generally a new Faculty Advisor must be selected. In such cases, the School Director will assist the student in selection of a new Faculty Advisor and ensure that the student's right to continue their program is protected.

Responsibilities of the Faculty Advisor

Faculty advising of all graduate students should be consistent with the [Guidelines for Graduate Student Mentoring and Advising](#). The Faculty Advisor:

- Ensures that graduate students receive information about requirements and policies of the graduate program (e.g., advising graduate students on developing a program plan, including selection of Guidance Committee members, including appropriate course plans, creative activity, and on available resources)
- Provides training and oversight in creative activities, research rigor, and in professional integrity, academic conduct, and ethical behavior.
- Advises graduate students on realistic prospects for successful completion within an appropriate time frame, and on the formation of a guidance committee.
- Encourages the graduate student to stay abreast of the literature and cutting-edge developments in the field. Assist with developing professional skills in writing reports and papers, making professional presentations, establishing professional networks, interviewing, and evaluating manuscripts and papers, and encouraging graduate students to stay current in the Packaging industry.
- Provides regular feedback on the progress of graduate students toward degree completion (e.g., providing feedback on program activities, course plan, and constructive criticism if the progress does not meet expectations, completion of [annual progress reports](#)).
- Helps the graduate student develop into a successful professional and colleague.
- Facilitates career development and exploration, including advising on appropriate job, internship, and career options, as well as on the preparation of application materials for appropriate scholarship, and other relevant opportunities.
- Writes letters of reference for appropriate scholarship, award, and job opportunities.
- Provides for advising of graduate students when the Faculty Advisor is on leave or extended absence.
- Assists the graduate student in navigating disagreements among the Guidance Committee.

Guidance Committee

The Graduate Program Director and the chair of the School of Packaging Graduate Committee serve as the Faculty Advisor and Guidance Committee for MS Plan B: Non-Thesis students. The Guidance Committee **must be completed in GradPlan by no later than the end of the student's third semester (excluding Summer)**.

The approval of the School Director on the electronic GradPlan constitutes approval of the membership of the Guidance Committee.

In accordance with University, College, and School policies. [GSRR, section 2.4.2](#), the student may make changes in the membership of the Guidance Committee with the School Director. Similarly, the School Director may make changes in the committee, as needed, with the concurrence of the student. In the event that a change in the composition of the Guidance Committee is needed, this change is initiated by submission of a revised GradPlan.

Responsibilities of the Guidance Committee

- Advises graduate students on course plan and academic strategy.
- Provides feedback and guidance concerning progress towards degree at least annually.
- Reviews program proposals in a timely, constructive, and critical manner.
- Shares responsibility with the Faculty Advisor for reviewing the student's progress and guiding the student toward completion of course and program requirements.
- Meets periodically as needed during the student's course of study.
- Provides guidance to help students achieve their career goals.

Graduate Student

The graduate student is responsible for learning and adhering to University, College, and School rules pertaining to graduate study and research, including those outlined in [Academic Programs](#), [Graduate Student Rights and Responsibilities](#), and [Student Rights and Responsibilities](#) at Michigan State University.

Responsibilities of the Graduate Student

- Meet University, College, and School requirements for degree completion, and forming a Guidance Committee that meets University requirements.
- The student is responsible for reviewing this School of Packaging Graduate Handbook annually in order to ensure they are meeting all responsibilities.
- Explore options in support of career and professional development needs and opportunities.
- Follow applicable disciplinary and scholarly codes of ethics and academic integrity.
- Maintain high standards of professional behavior and scholarly integrity. Failure to do so can lead to an allegation of misconduct in program activities. Penalties can be severe, including dismissal of students found guilty of plagiarism or data falsification. For additional information see <http://www.rio.msu.edu> and <http://grad.msu.edu/researchintegrity>.
- In particular, there have been a number of cases of scientific misconduct due apparently to unintentional plagiarism. In order to help avoid such instances, MSU provides “iThenticate” antiplagiarism software available on the [Desire2Learn](#) site. More information is available at <http://tech.msu.edu/ithenticate>.
- Graduate students are obligated to keep their Faculty Advisor and Guidance Committee apprised on a regular basis of their progress towards completion of their program.

School Director

The School Director shares responsibility with the Guidance Committee and the faculty in fostering the professional and career development of graduate students.

Responsibilities of the School Director

- Monitors the performance of Faculty Advisors and Guidance Committees to ensure that graduate students are receiving appropriate mentoring.
- Works towards the fair resolution of conflicts between graduate students and faculty. In the event that a change of Faculty Advisor and/or Guidance Committee should become necessary, the School Director is responsible for facilitating this change.
- Delegates certain responsibilities such as signatures on GradPlan forms to the Graduate Program Director.

MS Plan B: Non-Thesis Course Requirements

A total of 30 credits is required for the MS Plan B: Non-Thesis degree. The student's course plan must be approved by the student's Faculty Advisor. The student must:

- Demonstrate an understanding of basic statistics.
- Complete 15 credits in Packaging courses at the 400-level or above.
- Ensure that half of the 30 credits required for the degree are at the 800-level or above.

PKG Courses at the 400-level or above	More than half of the 30 credits at the 800-level or above
1-15 Credits	16 Credits
Core Courses	Core Courses
PKG 825 (4): Polymeric Packaging Materials PKG 805 (3): Advanced Packaging Dynamics PKG 815 (3): Permeability Shelf Life	
PKG 800-900 level (6 credits) excluding Packaging 888, 890, and 899	
Optional Elective Courses	Optional Elective Courses
PKG 411 (3): PKG Dev Tech PKG 421 (3): Virtual Design/Prototyping PKG 430 (3): Packaging-FMCG PKG 450 (2): Automotive/Industrial PKG PKG 452 (4): Medical Packaging PKG 455 (4): Food Packaging PKG 456 (3): PKG Shelf Life/Perish Food PKG 465 (3): Packaging Value Chain PKG 470 (3): Packaging Sustainability PKG 477 (3): Hazardous Materials PKG PKG 493 (3): Professional Internship-PKG	PKG 814 (3): PKG for Food Safety PKG 817 (4): Instruments/Analysis PKG Mat PKG 840 (3): Anti-Counterfeit Strategy PKG 850 (3): PKG Value Chain PKG 875 (3): Stability/Recyclability PKG Mat PKG 880 (3): Life Cycle Assessment PKG 890 (1-3): Independent Study PKG 891 (1-4): Selected Topics 800-Level courses in other disciplines (1-4)
Collateral Courses Any required collateral courses with GPA of at least 3.0 as designated in admit letter.	
Capstone Paper Complete and pass a Capstone Paper.	

Coursework

All course work must be completed with a minimum GPA of 3.0. Students must be enrolled in the University during the semesters in which the Capstone Paper is submitted.

Full-time Status*

In order to be considered full-time for academic purposes, students must carry the minimum number of credits per semester (9 credits).

International Students Online Course Regulations*

<https://oiss.isp.msu.edu/immigration1/visa-and-immigration-overview>

- U.S. Immigration Regulations require that only one online or distance learning class per semester can be used to count toward the minimum number of credits needed for full-time enrollment as an F-1 student.
- If the total number of credits of all the in-person classes and one of the online classes are more than the required full-time credits, it is possible to enroll in as many online classes as the student wishes.

Annual Progress Report

Each student is to submit to their Faculty Advisor, by March 31, an [Annual Progress Report](#) on their activities and accomplishments for the preceding period.

Apply for Graduation

<https://www.canr.msu.edu/packaging/graduate-degrees/forms>

In order to be certified to graduate, students must apply for graduation during the semester they anticipate graduating. The applicable form is available online, through the student's portal at student.msu.edu. If the student does not graduate during the intended semester, a new application must be submitted for the new semester of intended graduation.

Capstone Paper - MS Plan B: Non-Thesis (Residential and Online)

A final Capstone Paper is required of all MS Plan B: Non-Thesis students during the last semester of their program. The student must be registered at MSU during the semester in which the Capstone Paper is administered. This requirement may be waived if the Capstone is administered during the Summer (and the student was enrolled in the previous Spring, or will be enrolled in the following Fall semester).

Structure of Paper

The Capstone Paper must be a minimum of 5 pages, with the following guidelines:

- Title Page (not included in 5 pages)
- 12 pt font
- 1" margins on all sides
- Double spaced
- Writing format, no specific requirement

Personal Impact/Introduction

Consider the factors that influenced your decision to choose the MSU School of Packaging, would you complete this experience again (investing your time and money in a graduate program)? Why or Why not?

- Why did you select this program?
- Share details about the following aspects of your experience:
 - Professional Achievement Goals
 - Academic Success Milestones
 - Personal Development
- **Course Reflection**
 - What have you gained in coursework that you have already applied or anticipate applying in your future work or professional career?
 - Be course specific. Provide some details from each of your courses.
- **Program Reflection**

Students should discuss contributions to their PKG professional knowledge and leadership ability.

 - Learning Objectives
 - Program Impact
 - Application of Knowledge and Skills

Program Impact for School of Packaging Future Success

Critically analyze your time in packaging with the goal of improvement for future students.

- How would you improve the program for future students?
- What worked? What did not work?
- What information was left out that students will need in order to succeed in the work force?

Overall Conclusions

Remember your insights can help shape the future of the School of Packaging. Your experience matters! And we want to learn from you.

Submitting the Capstone Paper

- Due by week 12 of the semester.
- A single PDF file sent to the Graduate Program Director by email
 - Title Page (not included in the 5 pages)
 - Capstone Content
 - Updated Resume (not included in 5 pages)
- Students may re-submit the Capstone the same or following semester, if necessary.

Summary of MS Requirements with Due Dates

Year	Year 1	Year 2	Year 3	Year 4	Year 5
	Semester	Semester	Semester	Semester	Semester
Meet with Faculty Advisor	Fall	Fall	Fall	Fall	Fall
Annual Progress Report Due March 31 st each year	Spring	Spring	Spring	Spring	Spring
Guidance Committee Before completion of 3 rd semester	Spring				
GradPlan in SIS	Spring				
GradPlan Review		Spring	Spring	Spring	Spring
RECR/CITI Modules	Spring	Spring	Spring	Spring	Spring
GPA Review (3.0)	Fall, Spring	Fall, Spring	Fall, Spring	Fall, Spring	Fall, Spring
Remove Provisional Status Complete requirements, if applicable, by end of first year or date specified.	Fall				
Submit Capstone Paper	Final Semester				
Apply for Graduation	Final Semester				

Program Checklist

End of First Year or Date Specified

Complete requirements to remove “provisional” status, if applicable

End of First and Second Year

Complete SoP responsible conduct of research, scholarship, and creative activities training (CITI modules).

6-hour Discussion-based training.

March 31st Each Year

Submit [Annual Progress Report](#) to Faculty Advisor.

Capstone Paper

Capstone must be completed and submitted to Faculty Advisor by deadline

Graduation

Apply for graduation early in semester anticipated

Complete the Graduate School exit survey

Complete any required [collateral courses](#) with GPA of at least 3.00

Complete all course requirements specified in the GradPlan form, not including [collaterals](#).

Complete all course work with GPA of at least 3.0

Meet residency requirement*, minimum 6 credits earned on campus

Complete all requirements within 5 years

Before Leaving Campus

Leave forwarding addresses and telephone numbers, both work and residence

Optional

Provide salary information for statistical compilation

Graduate School Exit Survey

<https://grad.msu.edu/etd>

We strongly urge all graduating students to complete the short online exit survey. It takes about 5-10 minutes to complete the online survey. Only students who have applied for graduation have access. The Graduate School uses data from this survey when reviewing graduate programs and to guide decisions about services and initiatives for graduate students.

ACADEMIC POLICIES

GRADUATE PROGRAM STUDENT HANDBOOK 2024-2025

ACADEMIC STANDING

For retention and to remain in good academic standing as a School of Packaging degree candidate, a grade point average (GPA) of at least 3.0 in all courses that make up the formal program is required of all students. Any student falling below a 3.0 cumulative grade point average for two consecutive semesters will be dismissed from the program.

To maintain acceptable academic standing, students must complete any [collateral course](#) requirements within the first year of study, unless an extension is granted. A GPA of at least 3.0 must be earned in the [collateral courses](#).

For additional University policies on grading information, policies, and procedures, please refer to the [Academic Programs](#) catalog.

Annual Progress Report

As a program expectation in the Spring semester, each graduate student is to submit to their Faculty Advisor a report on their activities and accomplishments for the preceding period. The progress report forms (differentiating between [Doctoral Students](#), [Master's Plan A](#) and [Master's Plan B](#)) are available on the Graduate School website, or at <https://grad.msu.edu/annual-evaluation-forms>. The completed form is due March 31 each year. Students are then to schedule a meeting with their Faculty Advisor to review the final evaluation.

- The Faculty Advisor will complete the section on evaluation of student academic performance and the student and Faculty Advisor will sign the form.
- The graduate student has the right to attach a written response to the comments on the form if they choose.
- The form is forwarded and signed by the Graduate Program Director.
- The Graduate Program Director will complete the evaluation for MS Plan B: Non-Thesis and for MS Plan A: Thesis students who do not yet have a Faculty Advisor.
- A copy of the form will be returned to the student and the original form will become part of the student's electronic file.

Students who are considered not to be making satisfactory progress towards their degree due to poor grades, lack of research progress, or lack of participation in the School's programs have the right to receive a warning and to be given an appropriate length of time to remedy the deficiency, normally one semester. If the student continues to fail to make satisfactory progress, the student will be dismissed from the program.

Professional Standards

A graduate student is also expected to abide by the regulations of the University and the program, to pursue their program with diligence, to seek the counsel of the advisor when needed, and to be aware of the schedules and deadlines which affect the work and program as they appear in the University calendar.

- Grading policies of the School of Packaging follow the [Code of Teaching Responsibility](#) and other University regulations.
- Standards of behavior for graduate students in the School of Packaging are identical with those to be found in the [Academic Programs](#) catalog. Each student is advised to study this publication at the time of admission and to note the changes which are indicated in subsequent issues as the university governance structure evolves.
- Note that the [Graduate Student Rights and Responsibilities](#) document specifies that “The graduate student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards.”
- Work submitted by students, graduates, or undergraduates, as their own must in fact be the student’s work. Submitting work done by another person or work which is [plagiarized](#) is grounds for, at minimum, a penalty grade on the assignment and a formal report to the University. In more serious cases, it can lead to a failing grade for the course or even dismissal from the University. Students must understand that plagiarism is using the work of another without giving credit. Ideas obtained from others must be cited appropriately to identify the source or sources, even if the ideas are paraphrased in the student’s words. If the words of another are used, these words must be put in quotation marks, as well as being appropriately cited. Failure to do both is plagiarism and will have serious consequences.
- All Packaging graduate students (residential) are required to attend the School of Packaging seminar series, oral examination seminars in which students present results of their thesis or dissertation research, and comprehensive examinations. Students having a valid reason for absence from such seminars are to clear that absence with the Graduate Program Director.
- Students have the right to examine their departmental file, with the exception of any recommendation letters to which the student has formally waived access rights. Students who wish to examine their file should contact the Graduate Program Director.

RESPONSIBLE AND ETHICAL CONDUCT OF RESEARCH

All Faculty Advisors and graduate students are responsible for understanding the contents of the Graduate School’s document, [Guidelines for Integrity in Research and Creative Activities](#), available through the Graduate School. Graduate students should also become familiar with other resources made available by the Graduate School at <https://grad.msu.edu/researchintegrity/resources>.

Documenting Responsible and Ethical Conduct of Research (RECR) Training

Students should be logging into the ABILITY information management system at <http://ora.msu.edu/train> to complete their online RECR training. This is the system that must be used for proper documentation of training.

In compliance with University policy, all SoP graduate students must participate in training on responsible and ethical conduct of research, scholarship, and creative activities. The current plan is outlined here:

CITI Modules	MS A	MS B	PhD
Complete 4 CITI online modules. Completion of this requirement will be tracked in ABILITY. <ul style="list-style-type: none"> • Introduction to the Responsible Conduct of Research • Authorship • Plagiarism • Research Misconduct 	Year 1	Year 1	Year 1
Complete 3 additional CITI online modules, selected from the following list. Completion of this requirement will be tracked in ABILITY. <ul style="list-style-type: none"> • CITI Collaborative Research • CITI Conflicts of Interest • CITI Data Management • CITI Financial Responsibility • CITI Mentoring • CITI Peer Review 	Year 1 or Year 2		Year 1 or Year 2
Discussion-Based Training			
PKG 860-Research Methods fulfills the 6-hour discussion-based requirement.	Year 1		Year 1
The additional 6 hours of discussion-based training must be fulfilled by participation in selected lectures, class discussions, demonstrations, or other instructional sessions. Training will be centered on the following topics: <ul style="list-style-type: none"> • Peer review/critical analysis • Confidentiality • Mentorship • Conflict of interest/conflict of commitment • Data retention/management • Regulatory compliance <p><i>The Graduate School's Workshop Series</i></p>		Before Graduation	
Annual Refresher Training			
In addition to completion of the CITI and discussion-based requirements above, PhD students are required to complete 3 hours of annual refresher training, beginning in year 3. This can include discussion-based training and online courses beyond the 7 required in basic training. <ul style="list-style-type: none"> • CITI modules not previously taken to fulfill Year 1 or 2 or another refresher year's requirements • Department/College workshops, brown-bag luncheons, group discussions that cover RECR related topics • Graduate School RECR workshops not previously taken • One-on-one discussions between the student and their advisor • Other RECR related courses (non-CITI modules, academic courses, etc.) 			Yearly
Additional Specific Training			
Students who are supported by NSF, NIH, or USDA grants may be required to complete additional specific training; they must meet the timeline and content requirements of training for that grant. Consult your Faculty Advisor.	X		X

RECR Basic Education Program Requirements

Master’s plan B (including online) and grad professional (including medical students)

CITI Modules Year 1

- Introduction to the Responsible Conduct of Research
- Authorship
- Plagiarism
- Research Misconduct

6 hours discussion-based education (complete before graduation)

Master’s Plan A students

CITI Modules Year 1

- Introduction to the Responsible Conduct of Research
- Authorship
- Plagiarism
- Research Misconduct

6 hours discussion-based education (complete before graduation)

CITI Modules Year 2

Complete 3 of 6 possible RECR Basic modules:

- Collaborative Research
- Conflicts of Interest
- Data Management
- Mentoring
- Peer Review
- Financial Responsibility

Doctoral students

CITI Modules Year 1

- Introduction to the Responsible Conduct of Research
- Authorship
- Plagiarism
- Research Misconduct

6 hours discussion-based education (complete before finishing comprehensive examination and entering candidacy status, doctoral students starting in Fall 2020 or later)

CITI Modules Year 2

Complete 3 of 6 possible RECR Basic modules:

- Collaborative Research
- Conflicts of Interest
- Data Management
- Mentoring
- Peer Review
- Financial Responsibility

Year 3 forward

3 hours of annual refresher education

- CITI modules not previously taken to fulfill Year 1 or 2 or another refresher year’s requirements
- Department/College Workshops, brown-bag luncheons, group discussions that cover RECR related topics
- Graduate School RECR workshops not previously taken
- One-on-one discussions between the student and their advisor
- Other RECR related courses (non-CITI modules, Academic courses, etc.)

Screenshot

Misconduct in Research

<https://rio.msu.edu/misconduct>

Misconduct in research and creative activities will not be tolerated. Research Misconduct is defined Fabrication, Falsification, Plagiarism, or any other practice that seriously deviates from practices commonly accepted in the discipline or in the academic and research communities generally in proposing, performing, reviewing, or reporting Research and Creative Activities. Misconduct does not include appropriative practices in the Creative Arts insofar as they accord with accepted standards in the relevant discipline. Misconduct does not include honest error or honest differences in the interpretation or judgment of Research data.

Misconduct is an egregious violation of standards of integrity and is grounds for disciplinary action, including the termination of employment of faculty and staff, dismissal of students, and revocation of degrees. Faculty, staff, and students all have the responsibility to understand the [University's Policy on Misconduct in Research and Creative Activities](#), to report perceived acts of misconduct of which they have direct knowledge to the University Intellectual Integrity Officer, and to protect the rights and privacy of individuals making such reports in good faith.

University Policy About Dissemination of Graduate Students' Research

In keeping with MSU's public mission, the University requires that theses, dissertations, and abstracts will become public after the conferral of the degree; embargoes can only be pursued for a limited period. Results that are subject to restrictions for dissemination by funding agencies cannot be part of any document submitted as a thesis or dissertation to the Graduate School.

Requests for Hold/Embargo on Publication of Documents Submitted to ProQuest

Sometimes students may wish to put a hold/embargo on the online publishing of their thesis/dissertation for a brief period of time in order to obtain a patent or submit the work for publication. A request for an embargo of up to 2 years may be made using this [online form](#).

For questions regarding embargoes, please contact the Graduate School at msuetds.approval@grd.msu.edu or at (517) 353-3220.

An embargo is a hold on publication of an author's thesis or dissertation for a specified length of time. The options for length of embargo authorized by Michigan State University are 1 year or 2 years. When an embargo has been approved by your Faculty Advisor and college Associate Dean, the Graduate School will notify ProQuest and the MSU library. ProQuest will release the document for publication once the embargo period has expired.

MSU University Research Organization

<https://research.msu.edu/uro>

The Michigan State University Research Organization (URO) was established to enable faculty to pursue research in areas of national importance that are challenging or impossible under current MSU policies, particularly when review or restrictions on publication or considerations of citizenship status are involved.

- Graduate students and faculty involved in URO projects will receive written documentation and a verbal explanation of any limitations or implications to their current or future academic standing prior to URO participation.
- Classified research will not be conducted at an MSU affiliated URO.

STUDENT CONDUCT AND CONFLICT RESOLUTION

Rights and responsibilities, including codes of conduct, for graduate students are found in the [Graduate Student Rights and Responsibilities](#) document and the [Student Rights and Responsibilities](#).

Civil Rights and Title IX Education and Compliance

<https://civilrights.msu.edu/policies>

The University prohibits discrimination and harassment of as a foundational expectation of behavior to facilitate safe and equitable participation in University programs and activities.

Anti-Discrimination Policy (ADP)

This includes discriminating against or harassing any person on the basis of age, color, disability status, ethnicity, gender, gender expression, gender identity, genetic information, height, marital status, national origin, political affiliation, race, religion, sex (including pregnancy), sexual orientation, military or veteran status and weight, or any other status protected by applicable federal or state law in any of its programs or activities.

Relationship Violence and Sexual Misconduct and Title IX Policy

The policy, administered by ISR, prohibits discrimination on the basis of sex and sexual harassment, including gender-based harassment, sexual assault/misconduct, relationship violence and stalking.

Student Conflict Resolution

Alleged violations by students of student regulations or University policies may be referred to the appropriate judiciary. Academic units manage academic complaints, which are defined by the [Code of Teaching Responsibility](#), [Student Rights and Responsibilities](#), [Graduate Student Rights and Responsibilities](#), and the [Integrity of Scholarship and Grades](#).

When graduate students feel that their rights and responsibilities have been violated, they are urged to first attempt to resolve such conflicts informally with the person or people responsible. This is particularly the case when such conflicts are between graduate students and their Faculty Advisors, due to the importance of these relationships.

If attempts to directly resolve the conflict informally between those involved are not successful or are not desired, the student has several options:

- The student may consult informally with the Graduate Program Director or the School Director.
- The student may also, or instead, consult with the University Ombudsperson. Information about the role of the Ombudsperson, as well as general advice, is available from the [Ombudsperson's web page](#).
- If the problem remains unresolved, the student may file a formal grievance, following the procedures outlined in the policies referenced above.

Formal Grievance

A formal grievance must be submitted in writing to the School Director and must include the alleged violations of the student's academic rights, and a proposed remedy which could be implemented by a responsible administrator.

- The statement must be signed by the student and must specify in sufficient particularity to justify proceedings the point(s) forming the basis of the grievance, the person(s) and/or unit(s) against whom/which the grievance is filed, and the redress that is sought.

- Grievances must normally be initiated no later than the middle of the semester following the one wherein the alleged violation occurred (exclusive of Summer session).
- The grievance will be submitted by the School Director to the appropriate hearing board. Grievances alleging violation of academic and professional rights must be initiated at the lowest administrative level feasible, which is normally the School.

Hearing Board

The School has an established hearing board for hearing grievances filed by graduate students.

- It consists of three faculty (one serving as chair) and two graduate students.
- Faculty or students involved in or possessing other conflicts of interest in a case at issue shall be excused from sitting on the board for that specific case, and an alternate member will be selected.
- All members of the Hearing Board shall vote, except the chair of the board, who will vote only in the event of a tie.

The grievance procedure shall conform to University policies as delineated in Article 5 of the [Graduate Student Rights and Responsibilities](#) document.

Other Policy Resources

- [General Student Regulations](#)
- [Research Integrity](#)

GRIEF ABSENCE POLICY

The faculty and staff should be sensitive to and accommodate the bereavement process of a student who has lost a family member or who is experiencing emotional distress from a similar tragedy so that the student is not academically disadvantaged in their classes or other academic work (e.g. research).

For MS Plan A: Thesis and PhD students, it is the responsibility of the student to:

- Notify their Faculty Advisor and faculty of the courses in which they are enrolled of the need for a grief absence in a timely manner, but no later than one week from the student's initial knowledge of the situation.
- Provide appropriate verification of the grief absence as specified by the Faculty Advisor and faculty.
- Complete all missed work as determined in consultation with the Faculty Advisor and faculty.

It is the responsibility of the Faculty Advisor to:

- Determine with the student the expected period of absence – it is expected that some bereavement processes may be more extensive than others depending on individual circumstances.
- Receive verification of the authenticity of a grief absence request upon the student's return.
- Make reasonable accommodations so that the student is not penalized due to a verified grief absence.

If employed as a RA or TA, the graduate student must also notify their employer. Both employer and student will swiftly communicate to determine how the student's responsibilities will be covered during their absence. Graduate teaching assistants (TAs) should refer to the bereavement policy in the [MSU GEU Article 18](#). Students who believe their rights under this policy have been violated should contact the University Ombudsperson.

SCHOOL RESOURCES AND POLICIES

GRADUATE PROGRAM STUDENT HANDBOOK

2024-2025

School of Packaging

Interim Director, Dr. Laura Bix	bixlaura@msu.edu
Associate Director, Dr. Laurent Matuana	matuana@msu.edu
Graduate Program Director, Dr. Amy Radford-Popp	radforda@msu.edu
Administrative Assistant, Tracy Lorenz	smithtr7@msu.edu
Graduate Program Coordinator, Cathie Allison.....	allisonc@msu.edu
Business Accountant, Heather Miller	mill2709@msu.edu
Lab Manager, Aaron Walworth.....	walwort8@msu.edu

Business Portal - Students

[Student Business Portal](#)

The Student Business Portal, your one-stop destination for managing essential administrative tasks at the School of Packaging. This portal streamlines the process of requesting building access, submitting expense reimbursements, ordering supplies, and obtaining travel authorizations. Designed with students' needs in mind, the portal offers a user-friendly interface that simplifies these processes, ensuring quick and efficient approvals. Whether you need to access to the Packaging building, labs or offices, claim reimbursement for expenses, procure necessary supplies, or seek authorization for university-related travel, our portal provides a seamless experience, enabling you to focus on your academic and extracurricular pursuits. For questions, please contact Heather Miller, mill2709@msu.edu.

Enrollment in Classes

Students enroll for classes on a semester basis. Exact dates can be found in the “other important dates” section of the [University Academic Calendar](#) at <https://reg.msu.edu/ROInfo/Calendar/academic.aspx>.

Graduate students have priority for enrollment, so students should be able to get the courses and sections they desire, provided they enroll on time.

School Standing Committees

The School of Packaging has four standing committees - Curriculum, Graduate, DEI, and Advisory. These committees include student members, and welcome input from graduate students. Graduate student representatives to these committees are selected by the Packaging Graduate Association (PGA).

The membership of the Packaging Graduate Association (PGA) includes all graduate students in the School of Packaging. The PGA elects representatives to the School’s Standing Committees, as discussed above, and to College and University bodies such as the Council of Graduate Students (COGS).

Internships and Cooperative Education

Internships/co-ops provide graduate students with opportunities to integrate classroom learning with practical experience in the field of packaging. They are a great place for students to develop professional skills to enhance job opportunities after graduation while assessing personal strengths and weaknesses in a professional setting.

PhD Students

Doctoral students are eligible to take an internship after successful completion of two academic years or passing the comprehensive exam¹ with the approval of their Faculty Advisor.

Master's Plan A: Thesis, and Plan B: Non-Thesis

Students are eligible to take the internship after successful completion of the first year (three consecutive semesters of Fall, Spring, and Summer)² in the Packaging program with the approval of their Faculty Advisor.

General Guidelines for All Students

- Internships/co-ops cannot be completed in a student's last semester.
- Prior to seeking an internship/co-op, all students must gain approval from their Faculty Advisor and international students must contact OISS to understand OPT/CPT eligibility.
- Once an internship is obtained at a Career Fair or through MSU Career Services (such as Handshake), students must enroll in PKG 493 for three credits. Please note that there are weekly assignments required throughout this course.
- [PKG 493 Application Form](#) can be found online. Please be prepared to submit a copy of your offer letter and job description.
- When committing to a six-month (or longer) internship, students must enroll in the SS or FS semester for which they will be employed. The US semester is designated for students taking internships from May-August only.

¹ All PhD students must take the comprehensive examination by the beginning of their third year in the program. This is not relevant to internships.

² The three consecutive semesters can be in any order.

Collateral Courses

Students who do not have an undergraduate degree or background in packaging are required to complete the equivalent of the following basic packaging courses: PKG 221, 322, 323, and 432, with a minimum GPA of 3.00. A student may also fulfill a course requirement by demonstrating knowledge in the course areas (see *Waiver Policy* below).

Students must also have the equivalent of PKG 410. Students who have not completed or waived this course will be required to complete it as part of their program.

Three special courses for graduate students have been designed to facilitate completion of the collateral requirements. All three courses are only offered online for all students.

Courses	Credits
1. PKG 801* : (Fall) Materials (PKG 221 + PKG 322 + PKG 323 = PKG 801)	4
2. PKG 803* : (Spring) Distribution (PKG 410** = PKG 803)	2
3. PKG 804* : (Spring) Machinery (PKG 432 = PKG 804)	2

*Credits do not count towards the degree credits.

**PKG 410 can count towards the degree credits.

Waiver Policy for Required Collateral Courses

In certain circumstances, a graduate student may be able to waive one or more of the required Packaging collateral courses that are listed as collateral requirements, and thus may not be required to enroll in the course. Outlines for these courses are provided in Appendix 3.

The following criteria have been set for waiver requests and approval:

1. A request for the waiver of a required collateral course by a graduate student must be based on their work/academic experience and expertise gained prior to enrolling in the School. Knowledge gained while completing graduate studies will not be considered as a criterion for requesting a course waiver.
2. Requests for waiver of PKG 221, PKG 322 and PKG 323 [PKG 801], PKG 410 [PKG 803] or PKG 432 [PKG 804], including all supporting documentation, must be filed by the graduate student with the Graduate Program School Director of Packaging not later than the first day of classes of the student's first semester.
3. In addition to a letter requesting the waiver, documentation presented by the student may include:
 - a. Transcripts or a copy of the syllabus from other programs or courses with descriptions of course content.
 - b. Letters from employers.
 - c. Other evidence of related experience such as reports, patents, and publications.
4. A committee of faculty for each of the collateral courses will evaluate the documentation presented by the student. Examinations, if needed, may be scheduled.

Departmental Facilities

Addresses and Email

Graduate students are responsible for providing their current local address and telephone number in SIS (student.msu.edu). This is of particular importance for international students, who must also report the change to the Office for International Students and Scholars. Failure to report a change of address can result in deportation. The School also frequently sends notices to graduate students by email. Students should check their email on a regular basis.

Computer Laboratory – Room 121

Graduate students can use the computers in the computer laboratory whenever the rooms are not being used for classes or other scheduled activities. Students are expected to take care not to damage any equipment.

Copies and Copier

Graduate students are permitted to use the department copy machine for research and teaching purposes.

Keys and Swipe Access

Graduate students working in the Packaging Building will be issued necessary keys or swipe access by Tracy Lorenz. Lab keys must be authorized by the Faculty Advisor and are distributed by the lab manager, Aaron Walworth. Keys must be returned by the time the student leaves the School. Access to the Packaging Building outside normal hours is authorized via the [Student Business Portal](#). **Students are responsible for ensuring that doors to the building remain closed during hours when the building is not open. Doors are never to be propped open, and no unauthorized persons are to be admitted.** This is critical for the safety of students working in the building after hours, as well as to prevent theft of valuable research equipment and supplies.

Supplies

Supplies needed for teaching assistants will be provided by the department. TAs should request needed supplies from the course instructor. Supplies needed for research should be requested from the professor involved.

Laboratory Training for Research-based MS Plan A: Thesis and PhD Students

[Aaron Walworth](#), Lab Manager

Students engaged in research involving human subjects or animal use must complete the Michigan State University training modules for those subjects before submitting IRB or IACUC approvals. These modules may be completed as part of the training requirements below, or in addition to them.

All graduate student work in laboratories outside of regularly scheduled classes must have prior approval. Students must complete the required lab safety training prior to undertaking work in any Packaging labs. Initial safety training consists of online training modules from MSU Office for Environmental Health and Safety (EHS) and an in-person site-specific orientation with the Lab Manager. After completion of the initial safety training, graduate students must also be trained on each instrument they wish to use. An updated equipment list is available upon request. Only safety trained students may participate in equipment-specific training.

Application to Work in SoP Laboratory

<https://www.canr.msu.edu/packaging/research/internal-info-for-lab-users>

The application must be completed and signed by the graduate student, their Faculty Advisor, and the Laboratory Manager. Annual refreshers are required for several of the online training modules and EHS will email reminders. Additionally, annual in-person site-specific safety training refresher sessions are held each September, regardless of when the initial training was completed, and must be attended by all lab users. Students who do not participate in the refresher trainings will no longer be authorized to work in the labs and must stop working until all annual refreshers are completed. Maintaining the School's compliance with safety regulations is the responsibility of all students working in School of Packaging laboratories.

Biological and Hazardous Materials

<https://www.ehs.msu.edu>

Use of biological materials, pathogenic organisms, radioactive substances, or certain hazardous chemicals requires additional training. The student's Faculty Advisor will provide information about the required training. Regulations can be obtained on the EHS website.

EHS "Ability" Training

<https://ehs.msu.edu/training>

Detailed training information can be obtained by contacting the Laboratory Manager, Aaron Walworth, walwort8@msu.edu. To complete the online training modules, students should follow the "Ability Login" link on the EHS website at <https://ehs.msu.edu/training>. Following completion of the online modules, students should contact the Laboratory Manager to schedule the in-person training session.

Human Research Protection Program (HRPP)

<http://hrpp.msu.edu/>

Any research involving human subjects or materials of human origin must be approved by HRPP, the *Human Research Protection Program*, before any such research is initiated. This includes collection of data through surveys. If a student fails to obtain the appropriate prior approval, the thesis or dissertation containing such work will not be accepted, and the student will not graduate. Details of the requirements and the application are available on their website. Application for approval must be submitted by the Faculty Advisor jointly with the graduate student.

Institutional Animal Care & Use Committee (IACUC)

<https://animalcare.msu.edu/iacuc>

Similarly, any research involving vertebrate animals must be approved by IACUC.

ACADEMIC AND RESEARCH SEMINARS

Participation in these seminars and in the teaching program, where appropriate, is designed to broaden the student's background for future career activities.

MS Plan A: Thesis

As part of the final oral examination, each graduate student must present a seminar to the faculty and students of the School.

PhD Dissertation

As part of the comprehensive examinations and dissertation defense, each graduate student must present a seminar about their research to the faculty and students of the School, as well as to interested members of the public who wish to attend.

Research Seminars

The School of Packaging has a seminar program in which invited speakers present on subjects of interest several times each Fall and Spring semesters. Many of the speakers are experts from industry or other academic institutions.

Seminar Attendance

All on-campus graduate students are required to attend these seminars to be able to graduate. Attendance is taken, and students with a legitimate excuse (such as class, work, or illness) should inform the Graduate Program Director in writing so the absence can be excused. The attendance requirement is waived for students in the online program.

TRAVEL

Travel Request

All travel by graduate students that relates to official School of Packaging business, including that related to student research projects, requires prior approval through submission of a travel request. This is essential, as unapproved travel is not covered by University insurance. General University rules about travel can be found at the MSU Travel Office website at <http://www.ctr.msu.edu/COTravel>. You must see Tracy Lorenz for travel procedures.

Travel Funding

Reimbursement for research-related travel expenses should be discussed with the Faculty Advisor before any travel expenses are incurred. The student should clearly understand what expenses will and will not be authorized for reimbursement (within University maximums). Students should not assume that these expenses will be covered unless they have specific approval.

Both the University and the School of Packaging provide assistance in the form of travel grants or fellowships, under certain circumstances. Information about assistance is available through the Graduate School – Travel Funding or by going to <https://grad.msu.edu/travel> which includes a link to the travel funding application.

School of Packaging Travel Funding Process

The School will award a travel grant of up to \$300 to graduate students for domestic travel and \$500 for international travel under the following procedures/conditions:

1. The student is traveling to a recognized professional meeting to present a technical paper (poster or oral) based on work conducted as part of their work within the School of Packaging.
2. Evidence of acceptance of the paper must be presented at the time of application for the award.
3. The student has discussed the paper and travel with the Faculty Advisor who concurs with the proposed travel.
4. The travel must be in accordance with the Graduate Student Travel funding criteria, as provided by the Graduate School (<https://grad.msu.edu/travel>).
5. The student must fill out the request form for TRAVEL FUNDING from the Graduate School before requesting support from the School of Packaging.
6. The student should present the request to the School's director at least 30 days before the travel occurs and provide an estimate of all costs.
7. No more than 1 award will be made to any one student in any academic year and Summer.
8. The funds will be distributed to the student after the meeting via submission of a travel reimbursement form. The School of Packaging grant will not exceed the remaining cost of the trip after other grants are subtracted (\$300/\$500 is a maximum, not a guarantee).

FINANCIAL ASSISTANCE FROM SCHOOL OF PACKAGING AND CANR

Financial Assistance Opportunities

<https://www.canr.msu.edu/packaging/graduate-degrees/funding>

Several types of financial assistance are offered to graduate students through the School of Packaging when funds are available. Scholarships provide a dollar award, usually as a one-time award. Fellowships provide a stipend for the semester.

General Support Information

Scholarships, fellowships, and waivers of out-of-state tuition generally carry no attached duties. For scholarships and fellowships, full-time enrollment is often a requirement. Any such conditions will be delineated during the application procedure or in the award letter.

Fellowships and scholarships are generally one-time awards. Receiving awards beyond the first year requires reapplication, if such is permitted.

Graduate students must generally be in good standing (cumulative GPA of 3.0 or higher) to be considered for any type of financial assistance. Scholarship and fellowship awards may be based on a combination of performance and need.

Scholarships and fellowships not administered by the School are also announced as they become known to the School. These generally require an individual application form to be submitted to the sponsoring organization.

Graduate Assistantships

Graduate assistantships, for either teaching or research, provide a stipend and other benefits in return for certain work responsibilities. The School also sometimes hires students on a part-time hourly basis, either for specific short-term projects or on a longer basis. These employment situations will be addressed in [Work Related Policies](#).

New PhD Student Fellowships

Several prestigious fellowships for highly qualified new PhD students are available through gifts that have been made to the School. Applicants for the PhD program will be considered for these awards. These are generally made for a period of one year, with the expectation that recipients will be covered by an assistantship beginning in their second year. Some are restricted to permanent residents or citizens of the United States.

Packaging Scholarships

[Additional Information and Application](#)

Applications for several scholarships administered by the School are available. The deadline is normally during Fall semester and will be announced by email and through announcements in classes. Some scholarships are available only to undergraduates or to graduate students, and others to both. Some are restricted to permanent residents or citizens of the United States. Others are available to international students, as well.

School and College Fellowships

<https://www.canr.msu.edu/packaging/graduate-degrees/funding>

Applications for Graduate Office Fellowships – GOF (School of Packaging) and the Dissertation Completion Fellowship – DCF (CANR) are available online. Deadlines are announced by email. These are normally available only to on-campus students. Priority is given to students who do not have assistantships. This fellowship money is quite limited and used primarily for current students.

EMERGENCY FUNDING

College of Agriculture and Natural Resources - CANR

via The Graduate School

<https://grad.msu.edu/fellowships/emergency-fellowship-funding>

Office for International Students and Scholars - OISS

Emergency Assistance Award

<https://oiss.isp.msu.edu/grants/grants-and-scholarships-overview/oiss-funding>

OTHER FINANCIAL RESOURCES

Career Services

<https://careernetwork.msu.edu/>

Council of Graduate Students (COGS)

<https://cogs.msu.edu/resources/services/loans>.

Office of Financial Aid

<https://finaid.msu.edu/>

Office for International Students and Scholars

<https://oiss.isp.msu.edu/grants/grants-and-scholarships-overview/>

The Graduate School

<http://grad.msu.edu/funding/>

WORK-RELATED POLICIES

GRADUATE PROGRAM STUDENT HANDBOOK

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Graduate assistantships fall into two distinct categories, teaching assistantships and research assistantships. Although both have similar stipends and other benefits, there are important distinctions between them.

Assistantship Eligibility

Award of assistantships is usually most strongly influenced by the perceived ability of the student to perform the job involved.

University policy states that assistantships are available only to graduate students who maintain at least a 3.0 grade point average. By School policy, a graduate student whose GPA falls below 3.0 for two consecutive semesters will be dismissed from the program, and consequently will be ineligible for an assistantship.

As discussed in the [English Proficiency](#) section, teaching assistants are required by the University to have acceptable English proficiency skills.

Note: Assistantships are not generally available to newly entering international graduate students, especially at the MS level.

Assistantship Benefits

Both teaching and research assistantships include, in addition to the monthly stipend, exemption from out-of-state tuition, payment for up to 9 credits of tuition for Fall and Spring semester appointments, payment of most enrollment fees, and health insurance. Summer session assistantships, although rare, include payment of up to 5 credits of tuition. The award of an assistantship for a full academic year includes exemption from out-of-state tuition for the Summer session following or preceding the academic year, and payment of health insurance for the Summer following the academic year appointment.

The stipend level is set each year for graduate assistants. Stipends are not subject to Social Security taxes but are generally subject to income taxes. Graduate Assistants are also eligible for additional privileges. See the [Transportation](#) section.

Health insurance information for graduate assistants is provided by MSU Human Resources. Details can be found at <https://www.hr.msu.edu/benefits/graduate-assistants/health>. Coverage is provided at no cost for the graduate assistant only. Graduate assistants have the option of purchasing coverage for their spouse, same-sex domestic partner, and/or dependents.

Teaching Assistantships

<https://www.canr.msu.edu/packaging/graduate-degrees/funding>

Teaching assistantships provide a stipend in payment for teaching responsibilities. All students who wish to be considered for a teaching assistant position must submit a formal application. Application forms and instructions are available online.

Graduate Employees Union (GEU)

<http://geuatmsu.org>

Teaching assistants are represented by the GEU, and contract terms are determined by negotiation between the University and the union. Teaching assistants will be provided information about the GEU and their membership options when they are first appointed and annually thereafter. The GEU will also provide information about the policies and benefits operative under the current contract. The current contract can be found at <http://geuatmsu.org/about/geu-contract>.

Teaching Resources

The [Graduate School Teaching Assistant Preparation Program](#) provides a variety of information, resources, and services for current and prospective teaching.

English Proficiency

<https://elc.msu.edu/tests/msu-speaking-test>

MSU candidates for TA appointments who were required to demonstrate English proficiency, or as a condition for regular admission to Michigan State University must also demonstrate that they meet a minimum standard of proficiency in spoken English before they can be assigned teaching work that involves oral communication with students. Those ITAs who received a waiver of the TOEFL or of other accepted tests of English proficiency for admission, must also meet the requirement of proficiency in spoken English before they are assigned to teaching work that involves oral communication with students.

International students whose first language is not English must obtain a satisfactory score (50 or better) on the MSU Speaking Test before they can be appointed as a teaching assistant. Options to assist with improving scores, including English courses, ([AAE 451 or AAE 452](#) - ITA language support), can be found through the ELC website.

Details about the tests and procedures are available at <https://grad.msu.edu/tap/speak>. There is also a [Sample Test](#) available to assist you in practicing your English skills.

If a student obtains a score of 45 on the MSU Speaking Test and the School feels the test result was not reflective of the student's actual speaking ability, the School may ask the Review Board to independently evaluate the student's spoken English. The Board consists of a representative of the School of Packaging, two English Language Center representatives, and a representative of the Graduate School.

Research Assistants

Research assistantships provide a stipend for research work. Research assistants are not represented by the GEU. Selection of research assistants is at the discretion of the faculty member providing the funding for the student. Individual faculty have established differing procedures, and there is no coordinated application process. Students are advised to stay in contact with faculty doing the type of research in which they would like to participate, so they will be informed when opportunities arise.

Duties and Enrollment Requirements

Assistantships carry a work requirement that depends on the level of appointment, and also require certain minimum and maximum credit loads. In most cases, the stated workload is an average. Students are expected to be willing to work more than the hourly average when needed, compensated by working less hours when the need is less. The term of appointment, and thus the work expectation, extends beyond the semester class dates.

Quarter-time

- 10 hours of work per week
- MS students: 6 credits (including 899)
PhD students: 3 credits (including 999)
- Maximum enrollment is 16 credits (excluding 899 or 999)
- For Summer session, the minimum registration is 3 credits

Half-time

- 20 hours of work per week
- MS students: 6 credits (including 899)
- PhD students: 3 credits (including 999)
- Maximum enrollment is 12 credits (excluding 899/999)
- For Summer session, the minimum registration is 3 credits

Enrollment Deviations

Deviation from the **minimum** enrollment requirements listed above is permitted only during:

- Summer session, when a 3–credit minimum enrollment is allowed for all types of assistants with 1-credit minimum for doctoral students having successfully completed their comprehensive exam.
- The semester in which the degree is granted, when all types of assistants must enroll for at least the number of credits required to complete the degree or meet the university minimum registration requirement.

Any deviation from the **maximum** enrollment requirements listed above

- Must have the approval of the Dean of the college *prior to enrollment*.
- The minimum enrollment is reduced to 1 credit for PhD students who have completed the comprehensive examination requirement and are engaged in dissertation research.

Courses taken as a visitor DO NOT COUNT towards minimum enrollment requirements and are not covered by the assistantship tuition benefits.

Relationship Violence and Sexual Misconduct (RVSM)

All TAs and RAs must complete the online Relationship Violence and Sexual Misconduct Policy training. To access the training, login to the ORA training website at: <http://ora.msu.edu/train>.

Required DEI Training

<https://inclusion.msu.edu/education/dei-foundations.html>

MSU's DEI Foundations is a university-wide mandated online introductory education program about diversity, equity and inclusion. All Spartans, including students, staff and faculty, are required to take the course during their time at MSU.

Reappointment

The terms of an assistantship will be specified at the time of the award. Reappointment is generally contingent on availability of funding as well as on satisfactory performance. By University policy, all current graduate assistants will be notified each semester whether they will be appointed for the following semester.

Termination

The department may terminate a graduate assistantship for substandard performance, inability to perform expected duties, violation of the General Student Regulations contained in the [Spartan Life](#) handbook, or violation of the provisions concerning graduate student responsibilities contained in the [Graduate Student Rights and Responsibilities](#) document. Academic difficulty will result in a review of the student's overall situation by the department.

Graduate Assistant Leave Policy

[Academic Programs - Leave Policy](#)

A graduate assistant unable to fulfill the duties of their appointment because of illness or injury shall notify the School Director and Graduate Program Director as soon as circumstances permit. Similarly, a graduate assistant unable to fulfill the duties of the appointment because of pregnancy shall notify the Director as soon as circumstances permit. For full policy details, visit the Academic Programs policy website.

Jury Duty

For jury duty, please refer to the [GEU Collective Bargaining Agreement](#) (Article 18 – Employee Leave Time)

Outside Work for Pay

There are no specific School of Packaging outside work for pay policies for graduate students. All students who are on graduate assistantships should discuss outside work for pay with their supervising faculty, to make sure no conflicts are created.

UNIVERSITY RESOURCES

GRADUATE PROGRAM STUDENT HANDBOOK

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Academic Programs

[Academic Programs Catalog](#)

Anti-Discrimination Policy (ADP)

[Anti-Discrimination Policy](#)

Burgess Institute for Entrepreneurship & Innovation

<https://entrepreneurship.msu.edu>

Empowers students to learn through action by providing programs, courses, and resources to foster an entrepreneurial mindset and create new ventures. This program is designed to prime students to embrace failure mindfully, explore unknowns, and develop skills that set them apart in the job market.

Career Services Network

<http://careernetwork.msu.edu>

Assists students in career advising and seeking employment upon graduation. Their staff provides workshops, classes and individual advising. Students may also interview for internships or full-time employment.

School of Packaging Internship and Employment Director

[Angela Brann](#)

Offers assistance in finding internships and permanent employment. Provides resume preparation information and organizes the School's annual career fairs.

Center for Community Engaged Learning

<https://communityengagedlearning.msu.edu>

Community Engaged Learning is a teaching and learning strategy that integrates meaningful community partnerships with instruction and critical reflection to enrich the student learning experience, teach civic and social responsibility, and strengthen communities.

Class Search and Enrollment

<https://student.msu.edu>

Access is available by logging into the Student Information System.

Counseling & Psychiatric Services (CAPS)

https://caps.msu.edu/general_info

Students should feel free to contact the CAPS for personal concerns and crisis. Professional counseling and psychological services are offered to assist with personal, as well as career concerns. All services are confidential.

Student Health & Wellness Appointments

517.355.8270

Press "1" at the prompt to speak with a crisis counselor (CAPS is providing remote crisis services 24/7/365). Other prompt options are available for those not in crisis. Additionally, you can contact CAPS through their [Online Contact Form](#) to schedule your first appointment.

Guidelines for Integrity in Research and Creative Activities

<https://grad.msu.edu/researchintegrity>

Health Insurance

<https://www.hr.msu.edu/benefits/students/health>

MSU offers a student health insurance plan. Graduate assistants are provided with health insurance as part of their benefits.

Institutional Diversity and Inclusion

<https://inclusion.msu.edu>

The mission of the IDI Office is to lead and coordinate institutional priorities that advance inclusive excellence for all Spartans.

MSU/GEU Contract

[MSU-GEU Contract](#)

MSU Library

<https://lib.msu.edu>

We recommend that on-campus students take advantage of the library tours in order to familiarize themselves more thoroughly with all the available resources. There are many branch libraries on campus.

Packaging Librarian

[Julia Ezzo](#)

MSU Safe Place

<http://safeplace.msu.edu>

MSU Safe Place provides shelter to female, male, non-binary and trans adults and their minor-aged children who are experiencing stalking and/or emotional, physical or sexual abuse in an ongoing relationship and are in need of a safe, confidential place to stay.

MSU Student Food Bank

<https://foodbank.msu.edu>

To help address the food insecurity needs of students and their families with financial hardship.

Office for International Students and Scholars (OISS)

<https://oiss.isp.msu.edu>

OISS serves international students and foreign faculty. OISS is a resource center for information and consultation on matters related to the international student and faculty/scholars. The staff is prepared to help in any of the various areas of concern, including academic problems, immigration questions, social, health, employment, or financial matters.

Office of Student Support and Accountability

<https://ossa.msu.edu>

Centers equity, integrity, and learning in processes that emphasize the importance of working *with* students and the community. Work includes student and organizational conduct, academic integrity, care and intervention, conflict resolution, medical amnesty, and medical leave and return.

Olin Health Center

<http://www.olin.msu.edu>

The Student Health Service is located in Olin Health Center. There are neighborhood clinics available throughout campus open Fall and Spring semesters. Services are available by appointment only. In the event of a life-threatening emergency, no matter what time of day, always call 911.

Ombudsperson

<https://ombud.msu.edu>

Whether you are a student, faculty member, or staff, this office offers a confidential place to discuss both academic and nonacademic concerns including, administrative issues, workplace issues, or any concern that may relate to Michigan State University students. They also interpret and explain university policies and procedures. Their office is committed to providing unbiased, fair, and equitable services and support to all members of the MSU community regardless of color, disability, familial status (i.e., having children under 18 in a household, including pregnant women), sexual orientation, gender identity, citizenship status, national origin, race, religion, class, sex, and any other identities the constituent may hold.

Online Learning Resources

<https://remote.msu.edu>

This is a self-paced, individualized learning center that offers free assistance to students who want to improve their teaching and learning skills. Its goal is to help you develop the strategies and techniques you need to be a successful student. Workshops on specific skills are offered throughout the year.

Prevention, Outreach and Education

Office for Civil Rights and Title IX Education and Compliance

<https://poe.msu.edu>

Engages members of the university community by utilizing multi-disciplinary, community-driven and trauma informed approaches to educating on the prevention of gender-based violence.

Recreational Sports and Fitness

<http://recsports.msu.edu>

Students have access to equipment and facilities in the intramural facilities located in the IM-West, IM-East, and IM-Circle. Students must present a current MSU student ID in order to be admitted to these facilities and use the equipment.

Relationship Violence and Sexual Misconduct

[Policy on Relationship Violence and Sexual Misconduct](#)

Resource Center for Persons with Disabilities

<http://rcpd.msu.edu>

The Center provides services for persons with disabilities to maximize their opportunity for full participation in University activities.

Graduate assistants (RAs, TAs, and TEs) are considered both students and employees. They are thus eligible for disability accommodations in both of these roles, and these accommodations are provided through distinct documents coordinated by RCPD: Students receive VISAs (Verified Individualized Services and Accommodations), or VISTAs (Verified Individualized Services and Temporary Accommodations) and employees receive SEADs (Statements of Employee Accommodation Determination). Graduate assistants can register for both situations using [RCPD's MyProfile portal](#).

Accommodation Policy

[Disability and Reasonable Accommodation Policy](#)

Digital Accessibility Policy

[Digital Accessibility Policy](#)

Spartan Bookstore

<https://www.bkstr.com/spartanbookstore>

The Spartan Bookstore is located in the basement of the International Center on Shaw Lane. Several off-campus bookstores are located in the East Lansing area.

Student Life & Engagement

<https://sle.msu.edu>

Provides extensive student engagement services to assist students and enhance the educational experience. Michigan State University recognizes that the total development of the individual - personal, social, and physical, as well as intellectual, is of equal importance.

- [Eat at State](#)
- [Gender and Sexuality Campus Center](#)
- [Live On Residential Housing](#)
- [Office of Spartan Experiences](#)
- [Spartan Life Handbook](#)
- [Student Parent Resource Center](#)
- [Student Veterans Resource Center](#)
- [Women's Student Services](#)

Technology at MSU

<https://tech.msu.edu/support>

Find out about different technology support options for the MSU Community.

The State News

<https://statenews.com/>

An independent student-run newspaper that contains news and a listing of events of interest.

The Writing Center

<http://writing.msu.edu>

This center offers writing consultation to graduate as well as undergraduate students. One-on-one consultations are best for small papers or projects like vitas, abstracts, and cover letters, while peer response writing groups offer help developing drafts of larger projects like research, conference papers, and even theses/dissertations.

University Outreach & Engagement

<https://engage.msu.edu>

Facilitates university-wide efforts to create an ecosystem of engagement by supporting the engaged activities of faculty, staff, and students; fostering public access to university expertise and resources; and by advocating for exemplary engaged scholarship, nationally and internationally. In all of its work, UOE emphasizes university-community partnerships that are collaborative, participatory, empowering, systemic, transformative, and anchored in scholarship.

WorkLife Office

<https://worklife.msu.edu>

The WorkLife Office partners with the community to create an inclusive, responsive work environment where all faculty and staff are respected and supported toward well-being in work and personal lives.

ORGANIZATIONS

Council of Graduate Students (COGS)

<http://cogs.msu.edu>

The Council of Graduate Students (COGS) is dedicated to advancing the well-being and professional interests of graduate and professional students at Michigan State University through advocacy, leadership, and unity.

Packaging Graduate Association

Master's and PhD students, visiting scholars, and post-doctoral students in the School of Packaging are welcome to join the Packaging Graduate Association. PGA provides members with regular professional development, academic and personal support, social events, and community service opportunities. To learn more about upcoming events, watch for email blasts, attend the monthly meeting, or visit us on [LinkedIn](#).

THE GRADUATE SCHOOL

<https://grad.msu.edu>

- [Diversity, Equity, & Inclusion Programs](#)
- [Events](#)
- [Forms](#)
- [Funding](#)
- [Graduate Career Development](#)
- [Graduate Educator Advancement and Teaching \(GREAT\)](#)
- [Graduate School Office of Well-Being \(GROW\)](#)
- [MSU Guidelines for Graduate Student Mentoring and Advising](#)
- [Out-of-State Tuition Waivers](#)
- [Policy Information](#)
- [Professional Development](#)
- [Research Integrity](#)
- [Thesis and Dissertation Electronic Submission](#)
- [Traveling Scholar Opportunities](#)
- [University Committee on Graduate Studies](#)

TRANSPORTATION

Bikes and Scooters

<https://parking.msu.edu/permits/bicycles-scooters>

Bicycle and scooter registration through the MSU Department of Police and Public Safety or the Cities of East Lansing or Lansing is required. Registration from the Department of Police and Public Safety and the City of East Lansing is free. Bicycles can be rented from and serviced by [MSU Bikes](#) located behind Bessey Hall.

Buses

Buses operated by CATA serve all parts of the campus and connect with CATA routes serving the Lansing and East Lansing area.

Parking on Campus

<https://parking.msu.edu/permits/students>

Any vehicle a student brings on campus must be registered through the Parking Division of the MSU Police office. Fellowship recipients who receive an MSU Fellowship of \$1,000 or more per semester qualify for a graduate assistant parking permit.

TRAVEL ABROAD

Office for Global Health, Safety and Security

<https://globalsafety.isp.msu.edu>

24/7 International Assistance: 517-353-3784

International SOS Emergency Assistance: 1-215-942-8478

Provides information about issues related to safety around the world. Students must be a TA or RA to travel outside the U.S. to conduct required thesis or dissertation research or to collaborate with investigators conducting research abroad.

[Funds from the Graduate School](#) are available for any graduate and graduate professional students to present their research at professional conferences (in-person or virtual, domestic or international).

Graduate students traveling **internationally or domestically** for MSU-related work (research data collection, international professional conferences, courses, or other academic business) **must** see Tracy Lorenz, Assistant to the Director, who will direct the student in completing the Travel Request Authorization form and will input the student into the International Travelers Database (even if they are not being reimbursed for travel). This is the best way for MSU to stay in touch with our students if there is an emergency.

Travel Clinic

<http://travelclinic.msu.edu>

Provides information about health risks and needed immunizations.

Traveling Scholar Programs

<https://grad.msu.edu/traveling-scholar>

MSU is a member of the Big Ten Academic Alliance and Michigan Intercollegiate Graduate Studies. Graduate students might need to attend other institutions to complete course work.

APPENDICES

**GRADUATE PROGRAM STUDENT HANDBOOK
2024-2025**

APPENDIX 1 - Titles and Descriptions of Packaging Courses

For full course characteristics, prerequisites, and restrictions go to the [Office of the Registrar – Course Descriptions](#)

- PKG 101 Principles of Packaging** 3 cr. Fall, Spring, Summer
Packaging systems, materials and forms and their relationship to the needs and wants of society.
- PKG 102 Introductory Packaging Seminar** 2 cr. Fall, Spring
Packaging career choices in science, management and engineering. Creativity in packaging designs and career decisions.
- PKG 221 Packaging with Glass and Metal** 2 cr. Fall, Spring
Prerequisite: (CEM 141 or CEM 151 or LB 171) and (PHY 231 or PHY 231C or PHY 183 or PHY 183B or LB 273) and (PKG 102 or concurrently).
Physical and chemical properties of glass and metals and their applications to packaging.
- PKG 315 Packaging Decision Systems** 3 cr. Fall, Spring
Prerequisite: (MTH 132 or MTH 152H or LB 118) and (PKG 221 or concurrently).
Communication, analysis, and problem solving in the management, specification, production, sustainability, economics and testing of packaging.
- PKG 322 Packaging with Paper and Paperboard** 4 cr. Fall, Spring
Prerequisite: ((PKG 221 or concurrently) and PKG 101) and (MTH 133 or MTH 153H or LB 119 or MTH 124) and (CEM 143 or CEM 251 or CEM 351) and (STT 200 or STT 201 or STT 315 or STT 351).
Physical and chemical properties, manufacture, conversion, and use of wood, paper, paperboard, and related components in packaging. Design, use, and evaluation of packages.
- PKG 323 Packaging with Plastics** 4 cr. Fall, Spring
Prerequisite: ((PKG 221 or concurrently) and PKG 101) and (MTH 133 or MTH 153H or LB 119 or MTH 124) and (STT 200 or STT 201 or STT 315 or STT 351) and (CEM 143 or CEM 251 or CEM 351).
Physical and chemical properties of plastics and their relationship to selection, design, manufacture, performance, and evaluation of packages.
- PKG 410 Distribution Packaging Dynamics** 4 cr. Fall, Spring
Prerequisite: PKG 322 and PKG 323.
Identification and measurement of hazards in physical distribution. Methods of protection against climate, shock, vibration, and compression.

- PKG 411 Packaging Development Technology** 3 cr. Fall, Spring
Prerequisite: (PKG 322 and PKG 323) and ((PKG 315 or concurrently) or EGR 102).
Development of consumer packaging utilizing current technology tools. Integration of package structure, graphics and performance. Examination and application of current practices in packaging development.
- PKG 421 Virtual Design and Prototyping** 3 cr. Spring
Prerequisite: PKG 411.
Using technology resources to design and integrate packaging structure and graphics. Use of design thinking for package development. Virtual and physical prototyping. Emphasis on packaging for specialized markets.
- PKG 430 Packaging for Fast-Moving Consumer Goods (FMCG)** 3 cr. Fall
Prerequisite: PKG 315, PKG 322 and PKG 323.
Package graphics and structure in fast-moving consumer goods packaging and marketing. Consumer experience, printing and decoration. Preparation, production, and economics of packaging graphics.
- PKG 432 Packaging Processes** 4 cr. Fall, Spring
Prerequisite: (PKG 322 and PKG 323) and (PHY 232 or PHY 232C or PHY 184 or PHY 184B or PHY 294H or LB 274).
Integrated study of packaging and production operations, quality control, and organization and control of machines. Interrelationship of products, packaging, machinery layout and efficiency, and quality issues.
- PKG 444 Radio Frequency Identification (RFID) for Packaging** 3 cr. Fall, Spring
Prerequisite: PKG 322 and PKG 323 or approval of school.
Automatic identification tags, codes, and hardware and software for radio frequency identification (RFID). Business applications. Effect of products, materials, packaging, warehousing, supply chain, and quality on radio frequency equipment and readability.
- PKG 450 Automotive and Industrial Packaging** 3 cr. Fall
Prerequisite: MTH 124 or MTH 132 or LB 118 or MTH 152H. Semester Alias: PKG 440.
Returnable and expendable packaging for part shipments to assembly plants, cost justification, service parts packaging, logistical systems, and material handling.
- PKG 452 Medical Packaging** 4 cr. Fall
Prerequisite: PKG 322 or 323.
Special requirements for packaging pharmaceuticals and medical devices. Evaluation of package systems and packaging procedures.
- PKG 455 Food Packaging.** 4 cr. Spring
Prerequisite: PKG 322 and 323.
Food package systems and their relationship to specific products and processes. Product composition, deterioration, safety, and packaging solutions. Shelf-life, packaging, and supply chain issues.

- PKG 456 Packaging and Shelf Life of Perishable Food** 3 cr. Fall
Prerequisite: PKG 322 and PKG 323.
Chemical, physical and microbiological changes that affect quality of produce, meat, and seafood, and their relationship to packaging and distribution (cold chain).
Packaging and other preservation technologies to extend shelf life of perishable food.
- PKG 465 Packaging Value Chain** 3 cr. Fall, Summer
Prerequisite: PKG 322 and PKG 323.
Integrated identification and measurement of packaging supply chain components, from material extraction through processing, shipping, warehousing, sales and disposal. Integration of information technologies. Application and interrelationship of costs and financial aspects to the decision-making processes.
- PKG 470 Packaging Sustainability** 3 cr. Spring
Prerequisite: PKG 315, PKG 322 and PKG 323
Recommended Background: CEM 141 or CEM 151 or LB 171.
Restrictions: Open to juniors or seniors or graduate students in the School of Packaging.
Effects of packaging on sustainability and environmental quality. Solid waste and recycling. Air and water quality. Laws, economics and energy. Resource use and conservation. Life cycle analysis.
- PKG 477 Hazardous Materials Packaging** 3 cr. Summer
Recommended Background: PKG 322 and PKG 323.
Packaging hazardous materials. Title 49 of the U.S. Code of Federal Regulations. Product classes, use of regulations, exceptions, authorized packaging, and the performance testing program.
- PKG 480 Packaging Laws and Regulations** 3 cr. Spring
Restrictions: Open to sophomores or juniors or seniors or graduate students in the School of Packaging.
Recommended Background: PKG 322 or PKG 323
History and development of packaging laws and regulations. Relationships among law, government regulation and commercial regulation. Effect of current laws and regulations on packaging.
- PKG 485 Packaging Development** 4 cr. Fall, Spring
Prerequisite: (PKG 410 and PKG 432) and (PKG 315 or EGR 102) and (PKG 411 or concurrently).
Package development including selection, design and implementation of package systems for protection, distribution, merchandising, use and disposal.
- PKG 490 Directed Studies in Packaging Problems** 1-3 cr. Fall, Spring, Summer
Recommended Background: PKG 322 and 323.
Development of solutions to specific packaging problems. Supervised individual study. Maximum of 6 credits in all enrollments for this course.
- PKG 491 Special Topics. 1-4 cr.** Fall, Spring, Summer
Prerequisite: None.
Selected topics of current interest. Maximum of 8 credits in all enrollments for this course.

- PKG 493 Professional Internship in Packaging** 3 cr. Fall, Spring, Summer
Prerequisite: (PKG 322 and PKG 323) and (PKG 315 or EGR 102).
Restrictions: Approval of department. Application required.
Supervised professional experience in the field of packaging offered through corporations and other businesses throughout the U.S. Maximum of 6 credits in all enrollments for this course.
- PKG 499 Undergraduate Research** 1-3 cr. Fall, Spring, Summer
Restrictions: Open to undergraduate students in the Packaging Major. Approval of school. A student may earn a maximum of 6 credits in all enrollments for this course.
Undergraduate research project designed to enhance critical thinking, problem-solving, teamwork, and communication skills.
- PKG 801 Packaging Materials** 4 cr. Fall
Restrictions: Approval of department. Not applicable to required credits for Packaging graduate students.
Equivalency: PKG 322 and 323.
Physical and chemical properties of packaging materials; design, manufacture, performance and evaluation of packages.
- PKG 803 Packaging Distribution and Dynamics** 2 cr. Spring
Restrictions: Approval of Department. Not applicable to required credits for Packaging graduate students.
Equivalency: PKG 410.
Transportation environment, distribution packaging design and testing.
- PKG 804 Packaging Processes** 2 cr. Spring
Restrictions: Approval of Department. Not applicable to required credits for Packaging graduate students.
Equivalency: PKG 432.
Integrated study of packaging and production operations, quality control, organization and control of machines. Interrelationship of products, packaging, machinery layout and efficiency, and quality issues.
- PKG 805 Advanced Packaging Dynamics** 3 cr. Spring
Recommended Background: PKG 410 or PKG 803, Calculus II (MTH 133) or equivalent course from other schools.
Shock and vibration. Distribution hazards and product fragility. Cushion performance and package design. Environmental measurement and simulation.
- PKG 814 Packaging for Food Safety** 3 cr. Summer
Restrictions: Open to MS students in Food Safety major or graduate students in Packaging or approval of college. Interdepartmental with Veterinary Medicine.
Current issues in packaging and food safety.
- PKG 815 Permeability and Shelf Life** 3 cr. Spring
Recommended Background: MTH 124Q, MTH 132, PKG 322, PKG 323.
Relationship between the storage life of packaged food and pharmaceutical products and the gas, moisture, and organic vapor permeability of packages in various environments.

- PKG 817 Instruments for Analysis of Packaging Materials** 4 cr. Fall even years
Recommended Background: PKG 322, PKG 323.
Analytical methods for packaging including spectrophotometry and chromatography. Material identification and characterization. Migration and permeation measurements.
- PKG 825 Polymeric Packaging Materials** 4 cr. Fall
Recommended Background: Graduate students with chemistry, physics, and mathematics backgrounds.
Physical, mechanical and chemical properties of packaging polymers and multilayer structures; relationship between properties and performance of packaging materials and systems; processing of packaging plastics.
- PKG 840 Anti-Counterfeit Strategy and Product Protection** 3 cr. Summer odd years
Restrictions: Open to graduate students in the School of Criminal Justice or in the School of Packaging or in the Food Safety major or approval of department.
Interdepartmental with: Criminal Justice, Packaging.
Theory and applied techniques for anti-counterfeit strategies and product protection for food and consumer products.
- PKG 860 Research Methods** 3 cr. Fall
Recommended Background: General Statistics
Principles and expectations for responsible conduct of research in packaging. Integrity of the research process, critical thinking, scientific methods, proposal writing, and scientific communications.
- PKG 875 Stability and Recyclability of Packaging Materials** 3 cr. Fall odd years
Recommended Background: PKG 322 and PKG 323.
Interactions between packaging materials and environments: corrosion, degradation, stabilization, and recycling. Impacts of packaging disposal.
- PKG 880 Life Cycle Assessment: Background, Principles, Calculations, and Applications** 3 cr. Spring
Determination of the environmental footprint of products, packages and systems during their entire life cycle using life cycle assessment (LCA) methodology. Introduction to the theory and application of LCA.
- PKG 890 Independent Study in Packaging** 1-3 cr. Fall, Spring, Summer
Restrictions: Open only to Graduate students in School of Packaging. Approval of department; application required. Maximum of 4 credits in all enrollments of this course.
Special investigations of unique packaging problems.
- PKG 891 Selected Topics** 1-4 cr. Fall, Spring, Summer
Restrictions: Graduate students in School of Packaging. Maximum of 8 credits in all enrollments.
Selected topics of interest to graduate packaging students.
- PKG 899 Master's Thesis Research** 1-8 cr. Fall, Spring, Summer
Restrictions: Master's students in the School of Packaging. Maximum of 99 credits in all enrollments of this course.
Master's thesis research.

- PKG 985 Analytical Solutions to Packaging Design** 3 cr. Spring even years
Recommended Background: PKG 801.
Restrictions: Open to Graduate students in CANR or Engineering or Natural Science.
Approval of department; application required.
Analytical and quantitative techniques for packaging design and evaluation.
- PKG 990 Independent Study in Packaging** 1-3 cr. Fall, Spring, Summer
*Restrictions: Open only to PhD students in the School of Packaging. Approval of department; application required. **Fall, Spring, Summer.** Maximum of 6 credits in all enrollments.*
Special investigations of unique packaging problems.
- PKG 999 Doctoral Dissertation Research** 1 to 24 cr. Fall, Spring, Summer
Restrictions: Open to Doctoral students in the School of Packaging. Student may earn a maximum of 36 credits in all enrollments of this course.
Doctoral Dissertation Research.

APPENDIX 2 – School of Packaging Faculty and Graduate Research Areas

Dr. Eva Almenar, Professor

- Handling and packaging of whole and fresh-cut products in the global market
- Extension of the shelf life of food products: Active and Passive Modified Atmosphere Packaging (AMAP and PMAP), Controlled Atmosphere Packaging (CAP), Active Packaging (AP), and edible films
- Food/Package/Environment Interaction: Physiochemical, microbiological and sensorial changes. Relation between produce respiration, temperature, and package permeability (microperforated and continuous films)
- Food safety
- Permeation of gases, water vapor and volatile organic compounds
- Development of new polymers made from natural resources with a focus on agrowaste and their commercial applications
- Development of new packaging systems
- Evaluation of consumer and industry attitudes toward packaged food and packaging formats
- E-commerce food packaging

Dr. Rafael Auras, Professor

- Food product/package compatibility and interaction
- Mass transfer in polymers
- Permeability, diffusion, solubility and migration
- Material applications in packaging
- Biodegradable polymers
- Polylactide and starch polymers
- Biodegradable packaging
- Packaging sustainability

Dr. Laura Bix, Professor

- Human Factors with a particular emphasis on elderly and disabled
- Label Designs that improve the likelihood that consumers will:
 - Notice label information
 - Physically decipher label information
 - Understand label information
 - Comply with the information provided
- Closure Designs
- Subjects with diminished dexterity
- Child resistance
- Improving patient compliance through package design

Dr. Amin Joodaky, Assistant Professor

- Packaging Dynamics
- Characterizing and modeling mechanical properties and dynamic responses of packaging structures such as polymer foams
- Capturing and lab-reproducing six-degree-of-freedom (6DOF) vibrations of packages and vehicles during transportation
- Designing metamaterials for shock absorption in packaging
- Mechanics of composite structures
- Nonlinear dynamics and vibrations

Dr. Euihark Lee, Assistant Professor

- Packaging Evaluation using Machine Learning
- Data Mining for packaging
- Packaging structural analysis and optimization including mathematical modeling, finite element analysis
- Kirigami cushioning design for the e-commerce packaging applications
- Distribution simulation for the e-commerce packaging
- A hybrid distribution testing method using both computer simulation and physical testing

Dr. Monireh Mahmoudi, Assistant Professor

- Application of operations research methods in logistics and operations planning of packaging
- Development of rich and generalized packaging routing system with real-world packaging constraints
- Uncertainty management in the packaging routing value chain
- Waste value chain in packaging

Dr. Laurent Matuana, Professor

- Development of Natural Fibers-based Packaging Biocomposites/Biomaterials
- Microcellular and Conventional Foaming of Biocomposites/Biomaterials
- Nano-technologies Applied to Packaging Biocomposites/Biomaterials

Dr. Mohammad Mohiuddin, Assistant Professor

- Processing and Characterization of bio-nanocomposites, nanomaterials, and their applications in food processing and packaging
- Solid mechanics and Polymer composites
- Carbon Nanotube (CNT) based thermoplastics for development of pressure and temperature sensors, composite materials, and computational solid mechanics

Dr. Yooraee Noh, Assistant Professor

- Eco-friendly Technology for Plastic Circularity: finding efficient ways to pre-treat and reclaim multi-layered polymer materials and flexible packaging currently in production
- Valorization of Plastic Waste: repurposing challenging-to-degrade flexible packaging wastes through physical and chemical processing
- Environmental Footprint of Waste: understanding the composition and behavior of emerging airborne and waterborne plastic waste throughout the entire lifecycle of plastic production
- Occupational Safety and Health: developing processes that can selectively detect analytes present in the air phase, particularly those related to plastic production and manufacturing

Dr. Mercy Okezue, Assistant Professor

The Okezue Research Team synergizes expertise in both regulatory science and pharmaceutical product stability to deliver real-world solutions to current medical packaging needs. Research interests are in the following areas:

- Using real-world data to uncover deficiencies in current practices for pharmaceutical products packaging to proffer better strategies to maintain their critical quality attributes.
 - Including generating tools for monitoring regulatory intelligence for packaging materials
 - Evaluating the impact of packaging and storage on medical products
- Investigating the root causes of medical packaging failures
 - Developing and implementing actions to mitigate the highest risks
 - Applying the principles of quality risk management to provide solutions for current medical packaging needs.
- Exploring chemical and bioanalytical mechanisms for improving product performance for poorly soluble drug molecules including nanoparticle formulations and developing packaging to maintain product quality attributes.
- Examining innovative strategies to maintain regulatory compliance for medical product packaging to meet best international practices.
 - Stability and compatibility assessments to determine storage and primary packaging needs
- Building capacity and the requisite skills to successfully integrate and operate within the quality-regulated packaging system.

Dr. Muhammad Rabnawaz, Associate Professor

- Development of plastics from novel starting materials
- Group work is on the development of innovative materials for packaging applications. Active research areas include sustainable polymers from renewable materials, polymer composites, and high barrier coatings

Dr. Qiang Yang, Assistant Professor

- Low-cost cellulose and cellulose nanofiber from wood for low-cost cellulosic-based packaging
- Novel cellulosic films, foams, and aerogels with improved barrier, mechanical and surface properties for packaging
- Reuse of cellulosic-based packaging materials through enzymatic and mechanical treatments
- Active and intelligent packaging materials (integrated with biosensors, gas sensors, chemical sensors, pH, and temperature indicators)
- Lignin-based coatings and cellulose nanocrystal-based inks for cellulosic-based packaging materials
- Conversions of unrecyclable cellulosic-based packaging materials to fuels and chemicals.

APPENDIX 3 – Outlines for Core Courses

PKG 221: GLASS AND METAL PACKAGING, 2(2-0)*Prerequisite: PKG 101 or concurrent; CEM 141, PHY 231, MTH 124*

1. Glass, Definition, Composition, Raw materials, Additives, Other types of glass, Borosilicate, Lead, USP categories, Leaching
2. Glassmaking, Furnace, Melter, Regenerator, Refiner, Forehearth, Container manufacture, Press and blow, Blow and blow, Centrifugal casting, Ribbon machine, Drawn ware, Annealing, Coating, Nomenclature, Strength/Performance, Brittle failure, Internal pressure, Impact, Top load, Hydrodynamic failure, Thermal shock, Stress concentration, Defects, Specifications, Labeling, Economics, Specifications
3. Closures, Types, Screw, lug, friction, roll-on, snap-on, Child-resistant, Torque, Application, Removal, Liners, Linerless, Fitments, Dispensing closures, Tamper evidence
4. Metals, Packaging metals (steel, stainless, aluminum, tinplate), Manufacturing (availability, economics), Metal properties and users, Cans, Three-piece can, Two-piece cans (DI and DRD), Composite cans, Can stresses (compression, pressurization, vacuum), Compression/ Buckling, Can specifications (AAA x BBB, base weight), Can industry, Liners, Decoration, Aerosols, Uses, Economics, Two and three phase systems, Valves and dip tubes, Principles of operation (gas law, Charles' Law, Boyle's Law), Propellants (fluorocarbons, hydrocarbons, compressed gases), Special aerosols (piston type, co-dispensing), Pumps, Metal drums and pails, Coatings, Hazardous materials regulations, Corrosion, Theory, Corrosion protection (VCI's, sacrificial materials, coatings), Metal recycling, Foils, Strapping/Banding, Tubes, Economics

PKG 322: PAPER AND PAPERBOARD PACKAGING, 4(3-2)*Prerequisite: PKG 101, STT 200, 201, or 315, PKG 221 or concurrent, CEM 143*

1. Wood, Wood Classification, Nominal Dimensioning, Board Footage, Moisture Content, Psychrometer, Shrinkage/Expansion, Anisotropy, Moisture Stresses, Mechanical Properties, Pallets, wood and plastic, Pallet design/performance, Wood design principles, Nails, types and holding capacity, Crates/Boxes/Bin Pallets, Wirebound Boxes, Plywood, Particleboard, Fiberboard, Regulations
2. Paper/Paperboard, Paper Structure/Terminology, Cellophane, Paper/Paperboard Manufacturing, Fourdrinier/Cylinder Machines, Paper Specification, Machine Direction/Cross Direction, Basis Weight/Grammage, Moisture Content, Paper Labels, Optical Properties, Paper Types, Paper Standards, ASTM/TAPPI Tests, Ring Crush, Friction, Tear Strength, Tensile Tests, Porosity, Bending Stiffness, Bags, Multiwall Bags, Folding Cartons/Setup Box, Carton Manufacture, Paper Tubes/Drums/Cans, Slip Sheets
3. Corrugated Board, Board grades, Recycling/Properties, Corrugated Board Manufacture, Flutes/Single, Double, Triple Wall, Adhesive Bond, Specifications, Coatings and WVTR, Mullen/Puncture Tests, Flat Crush/Edge Crush Tests, Rule 41/Item 222, Box Certificates, Rule 40/Rule 49, Box Layout, RSC/CSSC/FOL/FTD Box Types, Box Manufacture/Scoring Allowances, Optimization, Economy, Compression Test, McKee Formula/ECT, Inserts/Partitions, Stack Height, Pallet Patterns (Column, Interlock), Banding/Strapping/Taping, Corrugated Board Pallets, Corrugated Board Cushions
4. Printing, Processes (Screen, Flexography, Gravure, Lithography, Letterpress, Electronic, Offset), Inks, Color (Gloss, Reflectance, Opacity), Differences in Materials (Corrugated, Metal Cans, Glass, Plastics), Problems (smear, graininess, registry), Equipment Needs, Coatings, Substrates and Surface Treatments, Surface Energy and Contact Angle, Artwork Forms

PKG 323: PLASTICS PACKAGING, 4(3-1)

Prerequisite: PKG 101; PKG 221 or concurrent.; CEM 143; PHY 232; STT 200, 201 or 315

1. Brief history of plastics, Definition of polymer, plastic, Macromolecules, constitutional units, monomers, Thermoplastic, thermoset, Major polymers, engineering plastics, Market shares and trends, costs, Interatomic and intermolecular forces, Cohesive energy density
2. Polymer structure, Polymerization process, Degree of polymerization, Oligomer, Homopolymer, Copolymers, Random, alternating, block, graft, Molecular architecture, Linear, branched, cross-link, Thermoplastic, Thermoset, Polymerization, Addition polymers, Step polymerization, Condensation polymers, Molecular weight, Averages (Number, weight, viscosity, Z), Distribution, Dispersion index, Effects on properties, Morphology, Amorphous, Crystalline, Semi-crystalline, Orientation, Effects on properties, Mechanical properties, Viscoelastic behavior, Viscosity, Elasticity, /Elastomers, Light, Transparency, IR spectrophotometry, Thermal properties, Glass transition temperature, Melt temperature, Time/temperature superposition, Effect of temperature on viscosity, Melt flow index
3. Major polymers in packaging, Polyethylene (HDPE, LDPE, LLDPE, Others), Polypropylene (Homopolymer, copolymer, OPP), Polystyrene, Polyvinyl chloride, Polyethylene terephthalate, PETG, Polyvinylidene chloride, Polyvinyl acetate, Polyvinyl alcohol, Ethylene vinyl alcohol, PEN, Nylon, Polycarbonate, Polytetrafluoroethylene, Polyacrylonitrile, Cellophane and cellulose, Additives
4. Polymer film and sheet, Extrusion, Cast film, Blown film, Lamination, Coextrusion, Coating, Metallization and silica deposition, Yield, Stretch and shrink film, Flexible Packaging, Bags, pouches, Bag-in-box, Retort pouch, Heat sealing, Methods, Evaluation
5. Permeability and shelf life, Basic concepts of mass transfer, Mechanism of permeation, Sorption, diffusion, Permeability, GTR, WVTR, Factors affecting permeability, Permeability measurements, Gas chromatograph, Water vapor transmission, Desiccants, Humidity chamber, Shelf life, Moisture sorption isotherm, Simple calculations, Multilayer structures, Cycling conditions, Computer models, calculations, predictions
6. Thermoforming, Basic concepts, Skin, shrink, blister, Plug assist, billow, vacuum snap-back, matched mold, Types of molds, Scrapless, twin-sheet, spin-welding, Thermoforming of foams, Pallets/bulk containers
7. Adhesion and adhesives, Adhesive bond strength, Cohesive bond strength, Packaging adhesives, Natural, Synthetic, Waterborne, Solvent-borne, Hot melt, Solvent emissions, Adhesion testing
8. Injection molding, Injection blow molding, Extrusion blow molding, Continuous, Intermittent, Die shaping, Programmed parison, Stretch blow molding, Coextrusion blow molding, Plastic/composite tubes, Coinjection blow molding, Aseptic blow molding, In-mold labeling, Drums, Rotational molding, Design features
9. Surface treatment, Corona treatment, Flame treatment, Fluorination, Sulfonation, Silica deposition, Printing
10. Packaging foams (PS, PE, PP, polyurethane, etc.), Characteristics, Open cell, Closed cell, Forming processes
11. Environmental aspects of plastics

PKG 410: DISTRIBUTION PACKAGING DYNAMICS, 4(3-2)*Prerequisite: PKG 322, 323*

1. Hazards (compression, drops, transportation, temperature, static electricity): how to measure, simulate, and protect against, Package performance testing (compression, shock, vibration, climate), Test methods (ASTM, ISTA, ISO, NMFC Rule 180), International Perspective
2. Compression, Compression testing, Package compression strength, Warehouse/transportation factors, Stack height calculations, Clamp truck damage
3. Shock, Typical shock damage, Measure of shock fragility (G forces), Accelerometers/shock indicators, Environmental data recorders, Handling statistics (drop heights, carriers), Shock pulse analysis (drop height, G, duration, filtering), Drop test machines (shock table, incline tester, cushion tester), Pallet marshalling, railcar coupling, horizontal impact tester, spring/mass model of product on cushion, Shock transmission, Damage boundary curve
4. Cushions (materials, manufacture, solid vs loose fill, foam-in-place), Cushion properties (open vs closed cell, relation to ideal spring), Cushion curves and design, Corrugated as a cushioning material, Economics of design (packaging costs vs product damage)
5. Vibration, Transportation environment, Typical vibration damage, Abrasion, Natural frequency (spring/mass model), Vibration magnification and resonance, Vibration measuring and testing (sine sweep vs random), Road profiles and random vibration testing, Replication/simulation, PSD plots and RV controllers, Geometric stability of unitized loads (banding, stretch wrap, friction)
6. Performance Testing, Prototype packages, ASTM D 4169, ISTA certification, Damage reproduction, Hazardous materials regulations, Commercial/Federal test specifications
7. Climatic Effects (Temperature, pressure, static electricity), U.S. climate data, Temperatures inside trailers (heat transfer by conduction, convection, radiation), Insulating packages (R value, heat capacity, ice requirements), Altitude effects (pressure change), ESD and vibration (triboelectric effect), ESD protective materials, Faraday cage principle

PKG 432: PACKAGING PROCESSES, 4(3-2)

Prerequisite: PKG 322, PKG 323

1. Quality topics, Inspection of attributes, Modern concepts of TQM and manufacturing management, Statistical Process Control
2. Materials and components used in machines, Metals and other materials, Work and power, linear and rotational, Machine drives and power systems
3. Specification development and management, Inventory management
4. Operating principles of specific types of machines, Palletizers and de-palletizers, Uncasing machines, Bottle unscramblers, Container cleaning, Air blast, Ionized air blast, Water rinse, Wash and rinse, Aggressive wash and rinse, Sterilization, Liquid filling, Volume filling equipment, Weight filling equipment, Level filling, Hot filling (subsequent cooling requirement), Influence of container types/materials, Unscrambling caps and lids, Capping and lidding, Chuck machines, Rotating disk machines, Difficulties and considerations with some fitments, Steam process for vacuum packaging, Cartonning, Induction welded inner seal, Induction heating process, Seal construction, Operational considerations, Shrink band application, Bottle neck bands, Large diameter tub bands, Dry product filling, Auger fillers, Baggers, Bag closing, Net weight filling, Gross weight filling, Scales, One and two stage filling applications, Accuracy, Economic implications, Product damage, Labeling, Pre-cut labels, Adhesives, Pressure sensitive, Roll labels, Pharmaceutical applications, Imprinting, Mechanical, Ink jet, Laser, Information, Programming, automation approaches, Vision systems, check weighers, metal detectors, and other sensors, PLC's and other control systems, Case packers, High speed, WAPC, Automatic vs. semi-automatic, Case erector, Form-fill-seal equipment, Horizontal, Vertical, Friction, ESD, High speed plastic pouches, Stand up pouches, Thermo-form-fill-seal equipment, Machine sections, Influence of material, Polypropylene, Robots, Operating components, Actuator systems, Conveyors, Horizontal and elevating, Materials, Surface lubrication (line lube), Accumulators, Operating speeds, Bar code readers
5. Line organization and operation, Line layout, Increasing downstream capacity, Efficiency of an individual machine, Efficiency of a set of independent machines, Efficiency of a set of machines which are not independent, Accumulator operation, Effect of accumulators online efficiency
6. Costs, Effect of production rate (efficiency, reliability, etc.)

APPENDIX 4 – Guidelines for Integrity in Research and Creative Activities

Research Integrity Newsletter – The Graduate School

GUIDELINES FOR INTEGRITY IN RESEARCH AND CREATIVE ACTIVITIES

The conduct of research and creative activities by faculty, staff, and students is central to the mission of Michigan State University⁶ and is an institutional priority. Faculty, staff, and students work in a rich and competitive environment for the common purpose of learning, creating new knowledge, and disseminating information and ideas for the benefit of their peers and the general public. The stature and reputation of MSU as a research university are based on the commitment of its faculty, staff, and students to excellence in scholarly and creative activities and to the highest standards of professional integrity. As a partner in scholarly endeavors, MSU is committed to creating an environment that promotes ethical conduct and integrity in research and creative activities.

Innovative ideas and advances in research and creative activities have the potential to generate professional and public recognition and, in some instances, commercial interest and financial gain. In rare cases, such benefits may become motivating factors to violate professional ethics. Pressures to publish, to obtain research grants, or to complete academic requirements may also lead to an erosion of professional integrity.

Breaches in professional ethics range from questionable research practices to misconduct.⁷ The primary responsibility for adhering to professional standards lies with the individual scholar. It is, however, also the responsibility of advisors and of the disciplinary community at large. Passive acceptance of improper practices lowers inhibitions to violate professional ethics.

Integrity in research and creative activities is based not only on sound disciplinary practice but also on a commitment to basic personal values such as fairness, equity, honesty, and respect. These guidelines are intended to promote high professional standards by everyone—faculty, staff, and students alike.

KEY PRINCIPLES

Integrity in research and creative activities embodies a range of practices that includes:

- Honesty in proposing, performing, and reporting research
- Recognition of prior work
- Confidentiality in peer review
- Disclosure of potential conflicts of interest
- Compliance with institutional and sponsor requirements
- Protection of human subjects and humane care of animals in the conduct of research
- Collegiality in scholarly interactions and sharing of resources
- Adherence to fair and open relationships between senior scholars and their coworkers

Honesty in proposing, performing, and reporting research. The foundation underlying all research is uncompromising honesty in presenting one's own ideas in research proposals, in performing one's research, and in reporting one's data. Detailed and accurate records of primary data must be kept as unalterable documentation of one's research and must be available for scrutiny and critique. It is expected that researchers will always be truthful and explicit in disclosing what was done, how it was done, and what results were obtained. To this end, research aims, methods, and outcomes must be described in sufficient detail such that others can judge the quality

⁶Michigan State University "Mission Statement" approved by the Board of Trustees on June 24-25, 1982, (<http://www.msu.edu/unit/provost/resources/mission.html>)

⁷MSU Faculty Handbook, Chapter VI, "Research and Creative Endeavor—Procedures Concerning Allegations of Misconduct in Research and Creative Activities" (<http://www.hr.msu.edu/HRsite/Documents/Faculty/Handbooks/Faculty/ResearchCreativeEndeavor/vi-miscon-toc.htm>)

of what is reported and can reproduce the data. Results from valid observations and tests that run counter to expectations must be reported along with supportive data.

Recognition of prior work. Research proposals, original research, and creative endeavors often build on one's own work and also on the work of others. Both published and unpublished work must always be properly credited. Reporting the work of others as if it were one's own is plagiarism. Graduate advisors and members of guidance committees have a unique role in guiding the independent research and creative activities of students. Information learned through private discussions or committee meetings should be respected as proprietary and accorded the same protection granted to information obtained in any peer-review process.

Confidentiality in peer review. Critical and impartial review by respected disciplinary peers is the foundation for important decisions in the evaluation of internal and external funding requests, allocation of resources, publication of research results, granting of awards, and in other scholarly decisions. The peer-review process involves the sharing of information for scholarly assessment on behalf of the larger disciplinary community. The integrity of this process depends on confidentiality until the information is released to the public. Therefore, the contents of research proposals, of manuscripts submitted for publication, and of other scholarly documents under review should be considered privileged information not to be shared with others, including students and staff, without explicit permission by the authority requesting the review. Ideas and results learned through the peer-review process should not be made use of prior to their presentation in a public forum or their release through publication.

Disclosure of potential conflicts of interest. There is real or perceived conflict of interest when a researcher has material or personal interest that could compromise the integrity of the scholarship. It is, therefore, imperative that potential conflicts of interest be considered and acted upon appropriately by the researcher. Some federal sponsors require the University to implement formal conflict of interest policies. It is the responsibility of all researchers to be aware of and comply with such requirements.

Compliance with institutional and sponsor requirements. Investigators are granted broad freedoms in making decisions concerning their research. These decisions are, however, still guided, and in some cases limited, by the laws, regulations, and procedures that have been established by the University and sponsors of research to protect the integrity of the research process and the uses of the information developed for the common good. Although the legal agreement underlying the funding of a sponsored project is a matter between the sponsor and the University, the primary responsibility for management of a sponsored project rests with the principal investigator and his or her academic unit.

Protection of human subjects and humane care of animals in the conduct of research. Research techniques should not violate established professional ethics or federal and state requirements pertaining to the health, safety, privacy, and protection of human beings, or to the welfare of animal subjects. Whereas it is the responsibility of faculty to assist students and staff in complying with such requirements, it is the responsibility of all researchers to be aware of and to comply with such requirements.

Collegiality in scholarly interactions and sharing of resources. Collegiality in scholarly interactions, including open communications and sharing of resources, facilitates progress in research and creative activities for the good of the community. At the same time, it has to be understood that scholars who first report important findings are both recognized for their discovery and afforded intellectual property rights that permit discretion in the use and sharing of their discoveries and inventions. Balancing openness and protecting the intellectual property rights of individuals and the institution will always be a challenge for the community. Once the results of research or creative activities have been published or otherwise communicated to the public, scholars are expected to share materials and information on methodologies with their colleagues according to the tradition of their discipline.

Faculty advisors have a particular responsibility to respect and protect the intellectual property rights of their advisees. A clear understanding must be reached during the course of the project on who will be entitled to continue

what part of the overall research program after the advisee leaves for an independent position. Faculty advisors should also strive to protect junior scholars from abuses by others who have gained knowledge of the junior scholar's results during the mentoring process, for example, as members of guidance committees.

Adherence to fair and open relationships between senior scholars and their coworkers. The relationship between senior scholars and their coworkers should be based on mutual respect, trust, honesty, fairness in the assignment of effort and credit, open communications, and accountability. The principles that will be used to establish authorship and ordering of authors on presentations of results must be communicated early and clearly to all coworkers. These principles should be determined objectively according to the standards of the discipline, with the understanding that such standards may not be the same as those used to assign credit for contributions to intellectual property. It is the responsibility of the faculty to protect the freedom to publish results of research and creative activities. The University has affirmed the right of its scholars for first publication except for "exigencies of national defense".⁸ It is also the responsibility of the faculty to recognize and balance their dual roles as investigators and advisors in interacting with graduate students of their group, especially when a student's efforts do not contribute directly to the completion of his or her degree requirements.

Misconduct in Research and Creative Activities

Federal⁹ and University⁷ policies define misconduct to include *fabrication* (making up data and recording or reporting them), *falsification* (manipulating research materials, equipment or processes, or changing or omitting data such that the research is not accurately represented in the record), and *plagiarism* (appropriation of another person's ideas, processes, results, or words without giving appropriate credit). Serious or continuing non-compliance

with government regulations pertaining to research may constitute misconduct as well. University policy also defines retaliation against whistle blowers as misconduct. Misconduct does not include honest errors or honest differences of opinion in the interpretation or judgment of data.

The University views misconduct to be the most egregious violation of standards of integrity and as grounds for disciplinary action, including the termination of employment of faculty and staff, dismissal of students, and revocation of degrees. It is the responsibility of faculty, staff, and students alike to understand the University's policy on misconduct in research and creative activities⁷, to report perceived acts of misconduct of which they have direct knowledge to the University Intellectual Integrity Officer, and to protect the rights and privacy of individuals making such reports in good faith.

RESOURCES

- "Guidelines on Authorship", Endorsed by the University Research Council, January 15, 1998 (<http://www.msu.edu/unit/vprgs/authorshipguidelines.htm>)
- "Integrity in Scientific Research: Creating an Environment that Promotes Responsible Conduct", National Academies Press, Washington, D.C., 2002, 216 pp (<http://www.nap.edu/books/0309084792/html>)
- "Research Data: Management, Control, and Access Guidelines", Endorsed by the University Research Council, February 7, 2001 (http://www.msu.edu/unit/vprgs/research_data.htm)

⁸ MSU Faculty Handbook, Chapter VI, "Research and Creative Endeavor—Sponsored Research and Creative Endeavor" (<http://www.hr.msu.edu/HRsite/Documents/Faculty/Handbooks/Faculty/ResearchCreativeEndeavor/vi-sponsoredresearch.htm>)

⁹ Office of Science and Technology Policy, "Notice of Final Policy", 65 CFR 76260.

APPENDIX 5 – Sample Forms

- Agreement between Faculty advisor and MS Candidate (optional)
- Application to Work in the SoP Laboratory
- Laboratory Checkout Form

Agreement between Faculty Advisor and MS Candidate

We hereby agree to work together as student and Faculty Advisor in the MS program in Packaging.

Student _____

Faculty Advisor _____

Date _____

Application To Work in SoP Laboratory

Print Form



Aaron Walworth
 Laboratory Manager
 School of Packaging
 Michigan State University
 448 Wilson Road, Rm 175
 East Lansing, MI 48824-1223
 Phone: 517-353-4439
 walwort8@msu.edu

Notes:
 - Please print clearly and legibly.

Date: Phone (optional):

Name: E-mail Address:

Department: MSU NetID:

Advisor's Name: Advisor's e-mail:

Project Title:

Instruments that will be used:
 (costs will be provided upon request)

Key(s) to the labs will not be issued until all safety training on this application has been completed.
 Training on specific instruments must be scheduled by contacting lab manager after completion of this general safety training.

Online training courses may be accessed at: <https://ehs.msu.edu/training/index.html>

Date applicant completed Lab Safety Basics + Biologicals (No Bloodborne Pathogens) EHS Training Track* (online):

*Must complete all sections of this track; **Requires annual refreshers

- 1) Chemical Hygiene, Lab Safety and Hazardous Waste**
- 2) Compressed Gas Cylinder Safety.....
- 3) Cryogen Safety.....
- 4) Lab Security Awareness.....
- 5) Asbestos in the Lab Setting.....
- 6) Biosafety Principles/Refresher (Choose Lab/Microbe Option)**
- 7) Autoclave Safety.....

Date applicant took EHS Non-Medical Sharps Waste Management Track (online):

Date applicant reviewed Chemical Hygiene Plan (https://ehs.msu.edu/_assets/docs/chem/msu-chem-hygiene-plan.pdf),
 Waste Disposal Guidance (<https://ehs.msu.edu/waste/waste-disposal-guidance.html>), and SoP Site Specific Safety
 Document (<https://www.canr.msu.edu/packaging/research/internal-info-for-lab-users/>).....

Date applicant attended the School of Packaging Site-Specific training (email to schedule with lab manager):
 Upload a copy of your Site-Specific Training checklist to Ability Training system after completion.

Informed Consent Statement: By signing below, the applicant acknowledges they have been informed about the location and contents of the MSU Chemical Hygiene Plan, the School of Packaging Site Specific Safety and Standard Operating Procedures Document, SDS sheets, and MSU Hazardous Waste Disposal Info. Signing also acknowledges that the applicant has completed the listed trainings.

Trainee Signature: Date:

Advisor Signature: Date:

SoP Approval: Date:

Applicant Status (Check One): Staff M.S. Ph.D. Undergrad Other, please describe:

School of Packaging
Laboratory Checkout Form (rev 10-22-2021)

Either Part A or Part B must be completed prior to departure or graduation. A minimum of 10 business days' notice must be given. This will allow sufficient time for a joint meeting between lab user, PI, and lab manager. This meeting will confirm that there are no outstanding issues in the lab related to the project.

Part A

I hereby certify that I have properly disposed of all experimental materials I have acquired or used, or that I have arranged with my major professor for them to be handled appropriately. All chemicals/materials that I have acquired and/or used have been disposed of or stored in accordance with University policies and regulations.

Name (please print): _____

Signature: _____

Date: _____

Name of Major Professor: _____

I hereby certify that the student named above has properly disposed of all his/her experimental materials or other appropriate arrangements have been made for them. All chemicals/materials that were acquired and/or used have been disposed of or stored in accordance with University policies and regulations.

Signature of major professor: _____

Date: _____

Part B

I hereby certify that no experimental materials or samples were used for my project, thesis, or dissertation.

Name (please print): _____

Signature: _____

Date: _____

Name of Major Professor: _____

I hereby certify that no experimental materials or samples were used for this student's project, thesis, or dissertation.

Signature of major professor: _____

Date: _____