Graduate Programs in Physics

Student Handbook

2025-26

http://www.wmich.edu/physics

Table of Contents

I. Introduction

Welcome!

This handbook contains information useful to students in the Department of Physics' graduate program. We hope it is a helpful supplement to policies and requirements established by Western Michigan University and its Graduate College. It is important that you also access the WMU Graduate College and the Graduate Catalog websites for more information. Many of you may also find useful resources at the office of International Student and Scholar Services. I encourage you to consult with me (the graduate programs advisor) and/or Dr. Asghar Kayani (the department chair) when questions arise concerning life here at WMU. Our contact information is listed immediately below in the next section. Any member of the faculty or staff will be happy to try to answer questions, provide advice, or at least steer you in the right direction.

It is a goal of the Department of Physics to provide an inclusive environment that fosters respect and provides opportunity for each person to attain their full potential.

We expect you to work hard to achieve your goals, and we pledge to do what we can to support you. As you pursue your studies and research, know that you are a valued member of our department. We wish you the best!

Kirk T. Korista, Ph.D.
Graduate Programs Advisor
Department of Physics

II. People who can help

A. Department Chair

Asghar Kayani (Asghar.kayani@wmich.edu)
Office: 1124 Everett Tower (Faculty office: 1133 Everett Tower)
Telephone (Chair's Office): (269) 387-4936
Approves graduate appointment positions and financial assistance, and is an additional point of student advice.

B. Graduate Programs Advisor

Kirk T. Korista (kirk.korista@wmich.edu)
Office: 2226 Everett Tower, (269) 387-4971
Meets with students to create and approve programs of study, monitors student progress, provides assistance in course enrollment choices (including approving electives), assists with and mediates student concerns, and conducts annual evaluations.

C. Administrative Assistant II

Kathy Miller (kathy.miller@wmich.edu)
Office: 1122 Everett Tower, (269) 387-4941
Processes graduate appointments, payroll, travel authorizations and reimbursements, distributes office keys, assigns building and room access, and gives students overrides so students can enroll in research and dissertation/thesis courses.

Provides assistance with application process, tracks progress toward degree, processes/copies student documents, maintains student records, and generates letters of appointment.

D. Instructional Laboratory Supervisor

Christopher (Chris) Hoffmann (christopher.a.hoffmann@wmich.edu)
Office: 2220 Everett Tower, (269) 387-4959
Creates teaching assistant (TA) assignments, assures appropriate lab set-ups, works with TAs on instruction skills, assists with and mediates enrolled student concerns, and conducts TA evaluations.

III. General and department information

A. Graduate College links and other useful websites

A wealth of information about your graduate career at Western Michigan University can be found at our department website and at the Graduate College website. Other helpful links:

https://wmich.edu/grad/COMPASS - COMPASS: Centering on Mentorship, Professionalization, and Student Success
https://wmich.edu/grad/Compass/AcademicSupport
WMU Graduate Catalog
Information for prospective graduate students
Information for current graduate students
International Student and Scholar Services
Immigration Compliance – Because of the complexity of immigration regulations, please consult with an immigration advisor well in advance of any immigration action.
Graduate Center for Research and Retention
Forms for graduate students
Dissertation and theses deadlines
Dissertation and theses FAQs
Dissertation forms and requirements
Master's graduation process
Doctoral graduation process
Academic policies
Student rights and responsibilities
Student conduct
Academic honesty – Note: Any misrepresentation of, or actions which intend to misrepresent, someone else's work, ideas, etc., as your own, or enabling someone else to do so, constitutes academic dishonesty. Findings of academic misconduct can result in the dismissal from the University.
University Ombuds – This person helps mediate student problems.

B. Teaching assistantship recipients

Departmental expectations for and training of our graduate teaching assistants will be provided by the laboratory supervisor.

C. Attendance at colloquia and public lectures

The department sponsors a number of colloquia and the occasional public lecture throughout the academic year. **All graduate students are required to attend these events** as an important part of their educational experience.

Colloquia are usually held on **Mondays at 4 p.m. in 1110 Rood Hall** from September through April, with refreshments served at an informal reception beforehand (3:30 p.m.) in Bradley Commons, 2202 Everett Tower.

D. Duration of department support and maximum time to degree

Graduate students do not receive more than 6 years (12 semesters) of financial support from the Department of Physics. In exceptional cases, individual appeals to this policy will be considered by the Department Graduate Committee, and must be approved by the department chair. The WMU Graduate College imposes additional restrictions on the time to degree**.** For more information, see the WMU Graduate Catalog.

E. Permission for 5980, 6010, 68x0 and 7000-level courses

The University registration system blocks students from registering in certain courses without department approval. To enroll in these courses, you must first complete the appropriate *Permission to Elect* form, available in the department office. Once you have received approval, then you will be given an override so you can register for the course.

Important: PHYS 7000 (master's thesis) and 7300 (doctoral dissertation) courses are subject to a continuous enrollment requirement. Also, you must be enrolled in one of these courses during the semester in which you graduate.

The department registration hold on 5980, 6010, 68x0- and 7000-level courses is in place to ensure that students are fully informed of all requirements for enrollment.

F. Completing forms

As you read this handbook, you'll notice that the University requires completion of many forms, particularly for the Ph.D. program. Some forms are available online as fillable pdf forms. If you cannot find the form online, please visit the main office. Ms. Lori Krum may email you about forms that you need to complete. Please read her emails closely and follow the directions found in the email.

Important! When such forms are completed, please turn them in to the department office for processing**. Please do not send forms to the Registrar, Graduate College, etc., without checking with the physics main office.** If in doubt, consult our office staff.

G. Department office and contact information

The Department of Physics office is located in 1122 Everett Tower. Our mail stop for interdepartmental campus mail is 5252. Office hours are Monday through Friday, 8 a.m. – 5 p.m. The office closes from Christmas Day to New Year's Day for the holiday recess period, and on Friday of the fall and spring semester breaks.

Mailing address:
Department of Physics
Western Michigan University
1903 W Michigan Ave
Kalamazoo MI 49008-5252 USA

Phone: (269) 387-4941

H. University-related and University-sponsored (non-personal) travel

If you wish to embark upon University-related or University-sponsored travel to a conference or laboratory, you should file a travel authorization request **before** traveling or paying for any up-front expenses (air fare, rental car, hotel, meeting registration fees, visa applications, etc.). Unless the transportation is to be paid with funds unassociated with the University, airline and rental car reservations must be conducted through the University's travel reservation service. Failure to follow procedures may result in denial of expense reimbursement or other sanctions. Well before your trip, consult the department office.

I. Office space

Graduate students on a University assistantship are assigned office space in Everett Tower or Rood Hall by the department chair. Graduate students who do not hold University assistantships are assigned office space if available.

J. Physics Student Commons

Make yourself at home in 2221 Rood Hall—a space for undergraduate physics majors and physics graduate students to study and socialize. The Physics Student Commons offers a microwave, refrigerator, tables and chairs, computers and printers, chalkboards, and a career information area. If the door is closed, the room is accessible by swiping your Bronco ID card. If you're the last person to leave, please close the door behind you.

K. Computer Lab

There is an open computer lab located on the 3rd floor of Rood Hall. Any student can stop in and use one of the many computers.

L. Virtual Parking Permit

To obtain your virtual parking permit, go to Parking Services and be sure to have your plate and vehicle information readily available. **NOTE: YOUR PLATE IS YOUR PERMIT**. Graduate appointees are exempt from paying the vehicle registration fee but must register their vehicle and present their letter of appointment. Parking Services hours of operation are Monday through Thursday, 8:30 a.m. to 5 p.m. and Friday 7:30 a.m. to 4 p.m. Any questions or concerns can be answered by emailing parking@wmich.edu or calling the office at (269) 387-4609.

M. Keys

See the department office staff for keys to your office and classroom lab if applicable. You must pay a $5 deposit for each key, and they must be turned in to the administrative assistant upon request. Deposits are returned when you return your keys. If keys are not returned in a timely fashion, your deposit is forfeited.

N. Building and Room Access

Once you have your Bronco ID Card, you will be given building access to Everett Tower and Rood Hall. You can use your Bronco ID Card to access these buildings after hours by swiping your ID card. Also, you will be given swipe access to 2221 Rood Hall (Physics Student

Commons). If you have access problems, please see the office staff.

O. Communications

Our primary method of communicating with you is by **email to your wmich.edu address;** please check it regularly. Graduate students are assigned a **mailbox** in the department office. **Please check yours for mail or notices once a week**.

P. Department events

The Department of Physics generally holds thee events for faculty, students, and staff annually: an outdoor picnic on campus in September, a holiday celebration in December, and a pizza party in April at the close of the spring semester. Graduate students will receive invitations via email. Family members and guests are welcome. We hope you will attend!

Q. Private Tutoring

To avoid possible conflicts of interest, graduate students cannot work as private tutors for students in courses they are grading/proctoring.

IV. Master's (M.A.) program

Be sure to read Master's Graduation Information set by the Graduate College, as well as the section on Physics Department requirements in the current Graduate Catalog.

Important: Our M.A. program is intended to be a **terminal** program; that is, students enrolled in this program are expected to leave the Department of Physics upon obtaining their master's degree.

Students intending to earn a Ph.D. in the Department of Physics should be enrolled in the Ph.D. program, not the master's program. **Ph.D. students *are* able to earn a master's degree *en route* to their Ph.D.**, a process described in a later section.

A. <u>Program requirements</u>

1. You must maintain an overall grade point average (GPA) of at least 3.00 in all graduate work. A course may be repeated once, but no more than two courses may be repeated during your graduate career. See the Graduate Catalog for a description of appeals processes.

2. A minimum of 30 semester hours of graduate credit should include the following 18 credit hours of required courses in physics:

a.	Research Seminar	PHYS 6100
b.	Mathematical Physics	PHYS 6150
c.	Computational Physics	PHYS 6200
d.	Quantum Mechanics I	PHYS 6220
e.	Statistical Mechanics	PHYS 6240
f.	Classical Mechanics	PHYS 6300
g.	Electricity and Magnetism I	PHYS 6620

Substitutions for these courses may be made with the approval of the graduate program advisor. You may choose additional (elective) credit hours from physics, computer science, engineering, mathematics, statistics, or other departments with the consent of the graduate program advisor.

3. You must earn a GPA of 3.00 or better in PHYS 6150, 6220, 6300, and 6620 **or** complete a Master's Thesis (6 credit hours of PHYS 7000). The thesis option is available to those who meet the above GPA requirement.

Undergraduate Credit in a Graduate Program
In certain instances, an advisor may permit a student to include up to six semester hours of 3000- or 4000-level courses in a graduate program, provided the student receives written permission from the advisor, the department chair, and the graduate dean prior to registering for these courses and then earns a grade of "B" or better. The form used to request approval of a graduate student's election of a 3000- or 4000-level course is found on the Graduate College website.

B. Important timeframes

1. Before the end of the first week of classes in your first semester at WMU, you should meet with the graduate programs advisor to discuss requirements and your Graduate Student Permanent Program. Specific courses listed on your Graduate Student Permanent Program can be changed later, if necessary, by approval of the graduate program advisor.

2. **Thesis option**: If you are interested in the thesis option, you should establish a research topic and identify a thesis supervisor by the start of the summer session after your first year. To start this process, meet with the graduate program advisor. You must have a thesis committee appointed and approved during your first semester of registration in PHYS 7000. This committee includes your thesis supervisor and two other graduate faculty members. The topic of your thesis must be based on the area of physics you've chosen, and it must be approved by your thesis committee. The committee may require an oral presentation of your thesis before approving it for submission to the Graduate College.

3. In the beginning of the semester prior to when you expect to receive your degree, you should (1) meet with the graduate programs advisor to be sure your Graduate Student Permanent Program form has recorded the courses you've actually taken and grades you've received for the minimum 30 required credit hours, and make sure the signed form has been submitted to the department office staff, who will send it to the Registrar; (2) check deadlines for diploma application and when the approved thesis (if relevant) is due in the Graduate College.

C. Resources for graduation

Official dates are listed at the Graduate College website. Useful links:
Required graduate student forms
Dissertation and theses deadlines
Dissertation and theses FAQs
Master's graduation process

V. Doctoral (Ph.D.) program

Be sure to read the Doctoral Graduation Information set by Graduate College as well as the section on the Physics Department requirements in the current Graduate Catalog.

Important: The doctoral program is expected to be completed in 5-6 years. You should complete a preliminary Doctoral Program of Study form with the graduate programs advisor during your first semester on campus.

A. Program requirements

1. You must maintain an overall grade point average (GPA) of at least 3.00 in all graduate work. You may repeat a course once, but no more than two courses may be repeated during your graduate career. See the Graduate Catalog for a description of appeals processes.

2. A grade "B" or better is required in the first-year courses PHYS 6220, 6300 and 6620 to continue in the Ph.D. program. It is important to know that failure to meet this requirement results in dismissal from the program. International students should know that this can severely impact visa status.

3. The program requires a minimum of 60 hours of graduate credit consisting of:

    a. 27 credit hours of basic core courses: PHYS 6100, 6150, 6200, 6220, 6230, 6240, 6300, 6620, 6630, plus (at least one of) PHYS 6700, 6710, or 6720.
    b. 18 credit hours of additional courses chosen from:
        i. Research courses (6800 Research in Atomic Physics, 6810 Research in Nuclear Physics, or 6820 Research in Condensed Matter Physics)
        ii. 5000-level or higher courses in physics or from other departments (e.g., mathematics, chemistry, computer science, statistics, engineering) mutually agreed upon by the student and the graduate programs advisor
    c. 15 credit hours in PHYS 7300 Doctoral Dissertation

    Note: A minimum of 30 credit hours (not including PHYS 7300 Doctoral Dissertation) must be taken after admission to the doctoral program. This requirement impacts transfer credits from other institutions, for example.

4. You must pass two major milestones, described in more detail in Section D, "Your progress toward degree":

    a. The **Dissertation Proposal Presentation (DPP)**, presented orally to your dissertation committee.
    b. The final **Oral Dissertation Defense**, presented to your dissertation committee.

5. You must satisfy the Research Tools requirement by completing **two** of the following:

    a. Demonstrate knowledge of basic numerical procedures frequently used in computational physics. This may be satisfied by earning a grade of 3.0 or higher in PHYS 6200 or equivalent.
    b. Demonstrate knowledge of differential equations at the level of MATH 5740. This can be satisfied by earning a grade of 3.0 or higher in PHYS 6150.
    c. Demonstrate knowledge of physics research in (1) equipment and laboratory practices or (2) advanced computational techniques, with satisfactory performance in PHYS 68x0.

6. You must prepare a doctoral dissertation suitable for publication, though publication is not required.

B. Acquiring a master's degree en route to your doctoral degree

While American research scientists do not usually hold a master's degree, it is common in some countries to earn a master's degree prior to the Ph.D. If you've entered our doctoral program with a bachelor's degree (or equivalent, e.g., MSc.), you may acquire a master's degree (M.A.) *en route* to your Ph.D. by the following process:

1. Ask the graduate programs advisor to review your Program of Study to make sure it meets the requirements for the master's degree as defined by the Graduate College and the Department of Physics. Get the appropriate digital signatures.

2. Email Jessica Pickett, in the Registrar's office, stating you want to apply for an MA degree *en route* to your Ph.D. You cannot apply for a master's degree *en route* online as a Ph.D. student. She will provide you with the instructions on how to do this. You will also need to email your signed Program of Study to the Registrar's office and pay the Graduation Application Fee.

3. This initiates the graduation audit that determines whether you are eligible for the master's degree.

Note: A separate online application for graduation will be filed later for your doctoral degree.

If you receive a master's degree *en route* to the doctoral degree, you must complete the minimum number of semester hours of graduate course work specified by the doctoral program in which you are enrolled, and you must meet the additional competencies that distinguish the doctoral degree from the master's degree.

C. Sequence of courses

See end of document for a diagram depicting the course sequence for a typical Ph.D. student entering in the fall semester. Students who have transfer credit for courses taken at another graduate school may have a different sequence. Students with transfer credit should discuss these courses with the graduate advisor as soon as possible.

D. Your progress toward degree: timeframes and milestones

1. Doctoral Program of Study form

You should complete a preliminary doctoral Program of Study form in consultation with the graduate program advisor during your first semester in the program. You may make changes later, if necessary, with permission of the advisor. This form is kept in the department and updated with course and grade information each semester as you progress toward your degree.

2. Early research experiences

You should begin seeking out a potential research supervisor as early as possible, but certainly after completing the seminar course PHYS 6100. You may enroll in two courses associated with your early research experiences. Both require a faculty supervisor.

To enroll, obtain the appropriate form from the department office and obtain signed approvals from the faculty supervisor, the graduate programs advisor, and the department chair. The form lists the number of credit hours and requires a description of the material to be learned and how progress will be evaluated. **Return completed form to the department office**. You will then be given an override so you can register for the course.

Course options:

a. PHYS 5980 - Selected Topics

This course affords an opportunity for advanced students with good scholastic records in physics to pursue independently the study of some subject of interest to them.

Prerequisite: Department approval. Credits: 1 to 4 hours. Open to upper-class undergraduate students and graduate students.

This is a graded course and the permission form should include a description of the graded work to be conducted.

Note that only 4 credit hours of PHYS 5980 are allowed in a graduate Program of Study. Permission to enroll in PHYS 5980 will generally not be granted prior to successful completion of the core, first-year courses PHYS 6150, 6300, 6220, and 6620. Other enrollment restrictions may apply.

b. PHYS 6010 - Introduction to Current Physics Research

Preferred. This course is taken early in the graduate program to help students become acquainted with contemporary research practices in physics. Goals might include development of skills with laboratory equipment, research protocols, safety procedures, computational resources and software and familiarity with the research literature. *Prerequisite: Departmental approval. Credits: 1 to 6 hours. May be repeated for credit. Graded on a credit/no credit basis. Open to graduate students only.*

PHYS 6010 is the typical early research experience course usually taken during the first two summers in the doctoral program.

3. Completing PHYS 6700, 6710 or 6720

Students must select at least one of these area-specialty courses, which are scheduled based on student requests and faculty availability – they are not offered regularly. The department tries to offer one of the three courses in each of the fall and spring semesters, or as necessary. Therefore, **you should meet with the graduate programs advisor regularly to plan your course progression well in advance**. We expect students to fulfill this requirement in their 4th or 5th semester.

4. Forming your dissertation committee

At the end of your second year, you will identify a research supervisor after consulting with the graduate programs advisor and gaining the consent of the faculty member involved. Then, with the approval of this research supervisor, you will identify a dissertation committee consisting of members of the Graduate Faculty (identified as such by the Graduate College). This committee will include your research supervisor and three additional Graduate Faculty members, with at least one from outside the Department of Physics.

To complete this process, you must complete the Notification of Committee Appointment form and seek digital signatures from your committee members. **Then email the completed form to the office staff to pursue other approvals and process your form**. Please see the department office staff if you have any questions.

Note: If your external committee member is from outside the University, an intermediate step is required. Please submit that person's CV to the department office staff, who will complete paperwork requesting that the Graduate College approve the committee member as graduate faculty. Once the external committee member is approved, you will be notified. At that point, you can complete the committee appointment form noted above. For more information, see department staff.

5. Beginning doctoral research and other coursework

Upon completing your second year of courses, you should begin enrolling in PHYS 68x0 (6800: Research in Atomic, 6810: Nuclear, or 6820: Condensed Matter Physics). You will receive permission to enroll by completing a *Permission to Elect* form available from the department office staff. The form includes a brief description of study and is signed by the student, research supervisor, graduate programs advisor and department chair. Credit is granted on a credit/no credit basis. **Be sure to return the completed form to the department office.** You will then be given an override so you can register for the course.

The required formal course work, including 3 credit hours in PHYS 67x0, constitutes 27 of the required 45 credit hours in an approved Program of Study before enrolling in PHYS 7300 (Dissertation Research). In addition to PHYS 68x0, other courses in physics, mathematics, statistics, computer programming, engineering, etc., can be added to your Program of Study with approval of the graduate program advisor.

Remember that adequate progress towards your Ph.D. usually requires greater than 40 hours per week *dedicated to your research*.

6. Your *Dissertation Proposal Presentation* (DPP)

Within 6 months of your third year, you should present a dissertation proposal. The DPP is a detailed outline of your dissertation research presented orally to your dissertation committee. The external member(s) need not attend but should receive all information related to the proposal in a timely manner.

Your proposal presentation should take about 45 minutes (this portion is open to the public), with extensive questions from and discussions with the committee to follow. The entire process will take approximately 1.5-2 hours, or as necessary. Your committee may require a written outline, descriptive abstract, short concept paper, printed copy of the presentation or similar materials from you prior to or as part of the presentation.

During your presentation, you will be expected to:

a. Discuss the specific scientific question(s) addressed by the proposed research, including sufficient background material to provide the context and motivation for it
b. Demonstrate originality of the research problem and discuss how the research will advance knowledge in the field
c. Briefly outline a pathway and an approximate timeline to completion

You should be prepared to demonstrate an appropriate level of familiarity with:

a. The physics related to the research project, i.e., the important processes, effects and interactions to the extent that these are known
b. The relevant research literature
c. Anything you present

For an experimental dissertation, you should briefly present and/or be prepared to discuss and answer questions pertaining to:

a. Experimental technique(s) to be employed to collect data
b. Experimental resources required
c. Important sources of uncertainty
d. Manner in which data will be analyzed and measured and issues related thereto

For a theoretical/computational dissertation, you should briefly present and/or be prepared to discuss and answer questions pertaining to:

a. The theoretical models that you will use and why you've chosen these over alternatives
b. Computational techniques that you will employ
c. Computational resources that will be required and the degree of accuracy desired
d. Means by which computed results will be checked

Note that you will not be held to the standard of one who is defending his or her dissertation. You needn't have an answer to every question posed. Rather, your depth of knowledge should be at the level of one who is beginning professional scientific research. **You must articulate what you are doing and why you're doing it. What will be your contribution to the field?**

Presentations are given a grade of satisfactory (required for progress in the program) or unsatisfactory, based upon overall performance. If necessary, the DPP may be repeated once

within 3 months of the initial presentation. This process should be completed before the end of your 3rd year.

Upon successful completion of the DPP, the research advisor will send notification to the department chair, graduate program advisor and office staff.

Reminder: A detailed summary of the research proposal should be provided to the external dissertation committee member(s) absent from the DPP.

7. Achieving Doctoral Candidacy

After your DPP is completed and you have completed **all required coursework and electives** (45 credit hours minimum), you should file a Doctoral Candidacy form with the Graduate College. Once you have collected the digital signatures, **email it to the department staff.** Staff will submit it to the Graduate College for approval. **Note: once you are approved for Doctoral Candidacy you can no longer take any other courses except PHYS 7300 Doctoral Dissertation**.

8. Dissertation Research – PHYS 7300

Upon approval of your Doctoral Candidacy status, you **must** enroll in PHYS 7300 (Doctoral Dissertation) the next semester. You must see the office staff to start the process of enrolling in the course. A minimum of 15 credit hours of PHYS 7300 are required, and **you must maintain continuous enrollment in this course and must be enrolled in the semester or session in which you graduate.** Unless the student plans to graduate within 1 year of registering in PHYS 7300, they will be taking that course in reduced credit load and will need to file an under-enrollment form (international students will also file a reduced course load form). **See office staff for assistance.**

Important: We strongly advise you to meet with or provide updates to your dissertation committee members at least once per semester. These meetings allow you to address problems and obstacles before your final oral examination. Meeting logistics are left to the discretion of the dissertation committee. While the external member(s) need not be present, he or she should receive updates for comments and questions.

9. Final Oral Examination / Oral Defense of Dissertation

Upon completion of your dissertation, you will present a final oral defense of your work. Once a date and time for the dissertation defense are agreed upon with your dissertation committee members, you are responsible for scheduling the exam by completing the Dissertation Defense Scheduling Form available from the Graduate College website. **You must email this form and an abstract of your dissertation as per the instructions on the form at least 2 weeks (10 working days) before your defense is scheduled**. This time should not conflict with any other scheduled dissertation defenses in the College of Arts and Sciences.

You must also reserve the examination room, usually Bradley Commons (2202 Everett Tower), by contacting the department office staff. The exam's duration is variable; a block of 3 hours should be reserved.

This examination will begin with a 45-minute presentation in which you will present a summary of your dissertation work. Then you'll answer questions about your dissertation and research area.

You will be given a grade of "pass" or "fail." The decision to "pass" must be unanimous. In a case where a doctoral dissertation committee cannot reach unanimous agreement, and a student wishes to appeal a negative decision, a Review Committee involving the dean of the Graduate College, the dean of the College of Arts and Sciences, and the chair of the Department of Physics will be established. This committee does not approve/disapprove the dissertation but seeks to resolve the controversy by authorizing procedural actions, such as reconstituting the dissertation committee if the case merits it.

After passing the Final Oral Examination, your dissertation chair will submit a letter stating the outcome of the examination to the department chair.

Note: More forms and procedures are required **after** your oral defense. Dissertation guidelines and all related requirements and procedures for submission can be obtained from the Graduate College.

E. Important graduation deadlines

1. At least two semesters before graduation, an up-to-date version of your doctoral Program of Study form must be filed with the Registrar's office. You will need to schedule a meeting with the graduate programs advisor to finalize your Program of Study. Once the form has been signed, it should be turned in to the department office. Staff will send the form to the Registrar's office.

2. At least 1 month prior to your Final Oral Examination, a copy of your doctoral dissertation must be submitted to each committee member.

3. **At least 10 business days** before the Final Oral Examination, you must file the Dissertation Defense Scheduling form along with the dissertation abstract with the Graduate Colle*ge.* You should obtain this form online (see link above). Important – you must inform the office staff of the intended date, time, and location (usually Bradley Commons) of the defense before filing this form with the Graduate College.

F. Graduation information

Official graduation dates are listed at the Graduate College website. Useful links:
Required graduate student forms
Dissertation and theses deadlines
Dissertation and theses FAQs
Doctoral graduation process

VI. Thesis and dissertation formats

Your Ph.D. dissertation must reflect original work in some area of physics and must be of publishable quality, although publication is not required. It must conform to the format required by the Graduate College and the Department of Physics

Master's theses and Ph.D. dissertations must be written and prepared following a format established by the Graduate College and the Department of Physics.

Failure to follow approved formats will delay acceptance of your thesis or dissertation and can postpone graduation.

VII. Annual review of performance

The department's Graduate Committee evaluates each student's progress once each year, usually in February or March. The graduate programs advisor will provide you a copy of your review document and the opportunity to discuss its contents.

Items considered as part of the evaluation include:

A. Academic performance and progress
B. Progress in dissertation or thesis work. For Ph.D. students, annual progress reports in the form of a meeting and/or communication with your dissertation committee are strongly recommended.
C. Attendance at department colloquia and other required events

Students can receive the review result "continued with reservations" for one or more of these reasons:

A. Not enrolling in the courses required by the degree at the first opportunity
B. Not completing the courses in his or her Program of Study in a timely manner
C. Performing poorly in required course work, including entering academic probation
D. Performing inadequately in research as judged by the dissertation or thesis advisor
E. Frequently missing department colloquia or other required events

Two sequential evaluations showing "continued with reservations" will result in dismissal from the program. Two non-sequential reports of continued with reservations may result in dismissal at the discretion of the Graduate Committee. **International students should know that this can severely impact visa status.**

Students objecting to the evaluation results should first meet with the graduate programs advisor and attempt to clarify any misunderstandings. If this meeting does not resolve the issue, the student may meet with the department chair. Finally, if still unsatisfied, the student may meet with WMU's Office of the Ombudsman. The Office of the Ombudsman also has an appeals process for program dismissal.

VIII. Awards and Scholarships

Graduate students in the Department of Physics are eligible to be considered for a number of awards and scholarships. No application is required. Winners are typically announced at our department Awards Ceremony in April.

A. Haym Kruglak Teaching Excellence Award

At the end of each academic year, the Graduate Committee meets to determine whether awards for outstanding teaching have been merited. These awards recognize exemplary performance in teaching during the fall or spring semesters. Graduate students who have taught a physics course at WMU during either or both of those semesters are eligible. Decisions are based upon student evaluation forms. Award recipients receive a congratulatory letter and a monetary award. Students may receive this award more than once.

B. George E. Bradley Award

At the end of each academic year, the Graduate Committee chairperson calls for nominations for the George E. Bradley Award. Nominees must have completed all the requirements for a doctoral degree in physics. The Graduate Committee meets to determine which of the nominees merits the award, which recognizes exceptional overall performance as a graduate student in physics with particular emphasis on excellence in research. The decision is based upon recommendations by the faculty and the laboratory supervisor and the cumulative record of the student's performance in teaching, coursework and research. Recipients of the George E. Bradley Award receive a congratulatory letter and a monetary award. A plaque listing the winners is displayed in the George E. Bradley Physics Commons.

C. Leo R. Parpart Physics Scholarship

Department faculty nominate and select student(s) based on the eligibility criteria:

1. Graduate or undergraduate student pursuing a degree in physics.

2. Preference given to students involved directly with experimental accelerator physics/operation/development; second priority to theorists in same areas of concentration; third priority to students in theoretical physics not related to accelerators; finally to students in other aspects of physics.

D. George and Jean Bradley Scholarship

Department faculty nominate and select student(s) based upon GPA and recommendation of instructors.

E. David Carley Memorial Graduate Award

An award is given annually to a graduate student in physics. Department faculty nominate and select a student based upon GPA and recommendation of instructors.

F. Western Michigan University's All-University and Department-level Awards: Graduate Research and Creative Scholar Award and Graduate Teaching Effectiveness Award

The Graduate Studies Council of the WMU Faculty Senate has established the Graduate Research and Creative Scholar Awards and the Graduate Teaching Effectiveness Awards to acknowledge graduate students' contributions to the scholarly and artistic productivity of Western Michigan University and to honor graduate students involved in a substantial way in WMU's instructional

mission. These awards are the highest honors bestowed by WMU to recognize excellence and achievement in research, creative activity, and teaching among its graduate students.

Academic units with a graduate program are invited to nominate students each year to be recognized. Each department may nominate one student at each degree level for each of the department level awards. Conferral of the department-level award(s) is determined by the department chair in consultation with the graduate committee. A student must be specifically nominated by a faculty or staff member in the department to be considered for the all-University recognition**.** All-University award recipients are selected by a committee of representatives from the Graduate Studies Council. In all cases students must meet the eligibility requirements set by the Graduate College.

Physics (PHYS) Ph.D. Program Sequence: 60 credit hours

Odd	Even	Even	Odd	3rd year		4th year		5th year (+)	
Fall	**Spring**	**Fall**	**Spring**	**Fall**	**Spring**	**Fall**	**Spring**	**Fall**	**Spring**
6150 Math. Physics	6300 Classical Mech.	6620 E & M I	6630 E & M II	67x0**	67x0**	An approved elective, 68x0, or 7300***	An approved elective, 68x0, or 7300***	PHYS 7300***	PHYS 7300***
6200 Comp. Physics (if **1st** year)	6100 Res. Seminar	6200 Comp. Physics (if **1st** year)	approved elective (if **1st** year)	68x0 (3 or 6 CH)	68x0 (3 or 6 CH)				
6220 QM I	6230 QM II	6240 Stat. Mech.	67x0** (if **2nd** year)			*** *Student must have a minimum of 45 CH and an approved Doctoral Candidacy Form prior to enrolling in PHYS 7300.*			
and/or approved elective if **2nd** year		and/or approved elective if **2nd** year		and/or approved elective	and/or approved elective				
	* *A minimum grade of 3.0 ('B') is required in each of these courses: PHYS 6220, 6300, and 6620 to continue in Ph.D program.*			* **Identify dissertation advisor, form Dissertation Committee**	* **A satisfactory DPP is expected within 1 year of completing required core courses.**	*** *Once begun, must maintain continuous enrollment in 7300, and no other courses.*	* *Student is strongly advised to meet with committee each semestr through to the final defense.*	* *Student is strongly advised to meet with committee each semester through to the final defense.*	* *Student is strongly advised to meet with committee each semester through to the final defense.*
(6-9 CH)	(6-9 CH)	(6-9 CH)	(6-9 CH)	(6 CH)	(6 CH)	(3 CH in 7300, otherwise 6 CH)	(3 CH in 7300, otherwise 6 CH)	(typically 3 CH)	(typically 3 CH)
Required Core Courses: PHYS 6100, 6150, 6200, 6220, 6230, 6240, 6300, 6620, 6630		** **Must take at least *one of the specialty courses* : PHYS 6700, 6710, 6720, as offered by student demand. Successful completion of PHYS 6220 (QM I) is expected prior to registration in PHYS 67x0, otherwise ASAP.**		**DPP = Dissertation Proposal Presentation The DPP is given in front of an *approved* dissertation committee.**		**Student is fully engaged in Doctoral and/or Dissertation Research**		**Students should plan to graduate prior to or by the end of year six (6).**	

Summer I and/or II	Summer I and/or II	Summer I and/or II	***Request permission to under-enroll. 15 CH of PHYS 7300 must be completed. **Student must be enrolled in the semester or term of graduation.**
course: PHYS 6010 (Introduction to Current Physics Research), or course approved by graduate programs advisor.	**course**: PHYS 6800, 6810, 6820 (as appropriate), or PHYS 6010 if dissertation advisor not yet identified, or course approved by graduate programs advisor. **Identify dissertation advisor**, begin scoping out research program, identify committee members.	**course**: PHYS 6800, 6810, 6820 (as appropriate), or course approved by graduate programs advisor, or possibly PHYS 7300 if requirements have been met.	

Notes: (1) Required course work = 27 CH; an additional 18 CH must be taken to reach the *minimum* of 45 CH for Doctoral Candidacy Status. (2) All elective courses must be approved by the graduate programs advisor prior to registration. A maximum of 4 CH of PHYS 5980 may be counted in the program of study. (3) Initial registration in PHYS 68x0 requires successful completion of required core courses, identification of the dissertation advisor, and involves preparation for DPP. (4) Student should plan to minimize excess credits in PHYS 7300 beyond the required 15 CH. (5) Students need not be registered during summer, unless they hold a TA appointment.