

# Welcome

to the Graduate Program of the Department of Physics and Astronomy at:

The University of Texas at San Antonio

The Department of Physics and Astronomy of the University of Texas at San Antonio provides opportunities for advanced studies and world-class research leading to the Doctor of Philosophy degree in Physics.

The PhD degree in Physics is awarded, by the University of Texas at San Antonio, to candidates who have 1) displayed an in-depth understanding of the subject matter and 2) demonstrated the ability to make a significant independent and original contribution to research in their field of specialty. This document describes the Policies and Procedures for the PhD in Physics.

We hope that it provides you with helpful information. Much of the information included here can be found in the Graduate Catalog or the Physics & Astronomy website.

Please be sure to check with the Graduate Advisor regarding information about program-specific policies and procedures.

We hope that you have a rewarding experience and wish you success! Please keep handy the [Physics and Astronomy Department website](#) often. There you will find useful information, such as, forms, guidelines, contacts you will need throughout your academic career with our department at UTSA.

*On Behalf of the Faculty and Staff of Department of Physics and Astronomy*

**Table of Content**

<b>Topic</b>	<b>Page</b>
GRADUATE FACULTY IN THE PHYSICS PHD PROGRAM	3
ORGANIZATION & ADMINISTRATION OF DOCTORAL PROGRAM	4
PHYSICS DEGREE REQUIREMENTS	4
Registration	4
Course Requirements	4
PROGRAM OF STUDY	5
SEMINAR AND NON-CREDIT REQUIREMENTS	6
Purpose	6
Seminar Requirements	6
Non-Credit Requirements	6
SUGGESTED COURSE SEQUENCE FOR THE PHD PROGRAM	6
Independent Study	6
Transfer of Credits	7
99-HOUR CREDIT LIMITATION	7
SELECTING A DISSERTATION ADVISOR	7
ATTENDANCE REQUIREMENT	8
Leave of Absence	8
Enrollment	8
SEMI-ANNUAL PROGRESS REPORT	8
QUALIFYING EXAMINATION	9
Comprehensive Requirement	9
Oral Qualifying Exam	10
MASTER'S DEGREE OPTION	10
Unsuccessful Defense of QE	10
Interim Master's Degree	11
ADVANCEMENT TO PHD CANDIDACY	11
Dissertation Committee	11
Dissertation Proposal	12
FINAL ORAL EXAMINATION (DISSERTATION DEFENSE)	12
GRADUATION	12
PROGRESS TOWARD THE DEGREE	13
RECOMMENDED SEQUENCE OF EVENTS FOR COMPLETION OF PHD	13
FINANCIAL ASSISTANCE INFORMATION	14
Graduate Assistantships	14
Teaching Assistantships	14
GENERAL ACADEMIC REGULATIONS	15
Grade Point Average	15
Academic Probation and Dismissal	15
GRIEVANCE PROCESS	16

**GRADUATE FACULTY IN THE PHYSICS PHD PROGRAM**

The Core Faculty members of the Physics PhD program are divided into two campuses:

*The Department of Physics & Astronomy at the University of Texas at San Antonio*

Arturo Ayon, PhD	Kelly Nash, PhD
Lorenzo Brancaleon, PhD	Christopher Packham, PhD
Andrey Chabanov, PhD	Arturo Ponce Pedraza, PhD
Chonglin Chen, PhD	Dhiraj Sardar, PhD
Liao Y. Chen, PhD	Eric Schlegel, PhD
Zlatko Koinov, PhD	David Silva, PhD
Nicolas Large, PhD	Elizabeth Sooby-Wood, PhD
Xochitl Lopez-Lozano, PhD	Angela Speck, PhD
Marcelo Marucho, PhD	Robert Whetten, PhD
Katherine Mayer, PhD	

*Southwest Research Institute, Division of Space Science and Engineering*

Maher Al Dayeh, PhD	Mark Libardoni, PhD
Frederic Allegrini, PhD	Stefano Livi, PhD
Amanda Bayless, PhD	Jörg-Micha Jahn, PhD
Mihir Desai, PhD	Ujjwal Raut, PhD
Robert Ebert, PhD	Kurt Retherford, PhD
Heather Elliot, PhD	Peter Roming, PhD
Stephen Fuselier, PhD	Benjamin Teolis, PhD
George Gladstone, PhD	Jack H. Waite, PhD
Jerry Goldstein, PhD	

*Affiliated Research Faculty*

Necip Guven, PhD (Texas Tech)  
Larry Tankersley, PhD

## I. ORGANIZATION & ADMINISTRATION OF DOCTORAL PROGRAM

The Physics doctoral program is administered through the Graduate Studies Committee (GSC). The GSC is comprised of five core faculty members. The GSC elects its own chairperson, who is then appointed by the Department Chair to be the Graduate Advisor of Record (GAR) for the Physics PhD program. The GSC reviews and recommends the academic policies and the degree requirements to the Graduate faculty. The GSC also recommends and approves students for candidacy for the PhD.

The Graduate Advisor of Record (GAR) for the Physics PhD program advises all doctoral students, supervises the maintenance of records, and represents the Physics and Astronomy Department as well as the Space Science and Engineering Division at SwRI in most matters relating to Physics doctoral students. Questions about degree requirements and academic policies should be directed to the Graduate Advisor of Record. Final authority for the Physics PhD program rests with the Office of the Provost and Vice President for Academic Affairs.

## II. PHYSICS DEGREE REQUIREMENTS

### A. REGISTRATION

Rules recommended by the GSC and approved by the core faculty, the Department Chair, the Graduate Council and the Office of the Provost and Vice President for Academic Affairs govern the registration of the doctoral students. Students register for available classes through the ASAP online system <http://asap.utsa.edu/>. However, some courses require departmental approval. Students should register no later than two weeks prior to the beginning of the semester in order to allow enough time to process the requests for those courses that require Departmental approval. The student should discuss selection of lecture courses with the graduate advisor or their Dissertation Advisor, once this faculty member is selected. First year students are strongly encouraged to register for two of the core classes in the Fall semester and the remaining two core classes in the Spring semester.

**The Graduate Advisor of Record and the Dissertation Advisor (once appointed) must approve the Program of Study (POS). Students are therefore encouraged to review the POS with their advisor and their dissertation committee periodically.**

### B. COURSE REQUIREMENTS

The doctoral degree requires a minimum of 81 semester credit hours beyond the Baccalaureate Degree. The coursework in the Program of Study includes a Core Curriculum (12 hours) and advanced electives (21 hours) which could include a total of 6 credits (2 graduate courses) taken in another program (e.g., chemistry, electrical engineering, etc.) upon approval of the DSC and/or the Dissertation Advisor. Research hours include Research Seminar (3 hours), Directed Research\* (minimum of 9 hours), Doctoral Research\*\* (minimum 27 hours) and Doctoral Dissertation (12 hours), and together total a minimum of 42 research credit hours. The choice of classes beyond the 12 hours of Core courses must be coordinated with the dissertation advisor or the GAR.

**\* Directed Research can only be taken until a student advances to candidacy.**

**\*\* Doctoral Research requires approval of the Chair of the DSC (or GAR) prior to advancement to candidacy.**

**III. PROGRAM OF STUDY (POS)**

- A. Core Curriculum (12 credit hours)
- |            |             |                              |
|------------|-------------|------------------------------|
| <b>PHY</b> | <b>5103</b> | <b>Classical Mechanics I</b> |
| <b>PHY</b> | <b>5203</b> | <b>Electrodynamics I</b>     |
| <b>PHY</b> | <b>5303</b> | <b>Statistical Mechanics</b> |
| <b>PHY</b> | <b>5403</b> | <b>Quantum Mechanics I</b>   |
- B. Advanced Physics electives (21 credit hours from the following)
- |            |             |  |
|------------|-------------|--|
| <b>PHY</b> | <b>6103</b> | <b>Classical Mechanics II</b>                        |
| <b>PHY</b> | <b>6113</b> | <b>Fluid Mechanics</b>                               |
| <b>PHY</b> | <b>6123</b> | <b>Plasma Physics and Magnetohydrodynamics (MHD)</b> |
| <b>PHY</b> | <b>6133</b> | <b>Scientific Writing</b>                            |
| <b>PHY</b> | <b>6203</b> | <b>Electrodynamics II</b>                            |
| <b>PHY</b> | <b>6303</b> | <b>Quantum Mechanics II</b>                          |
| <b>PHY</b> | <b>6313</b> | <b>Solid State Physics</b>                           |
| <b>PHY</b> | <b>6323</b> | <b>Nonlinear Optics and Lasers</b>                   |
| <b>PHY</b> | <b>6403</b> | <b>Fundamentals of Space Physics</b>                 |
| <b>PHY</b> | <b>6413</b> | <b>Fundamentals of Astronomy</b>                     |
| <b>PHY</b> | <b>6503</b> | <b>Mathematical Physics I</b>                        |
| <b>PHY</b> | <b>6513</b> | <b>Mathematical Physics II</b>                       |
| <b>PHY</b> | <b>6523</b> | <b>Computational Physics</b>                         |
| <b>PHY</b> | <b>6613</b> | <b>Methods of Experimental Physics</b>               |
| <b>PHY</b> | <b>6623</b> | <b>Space Physics Laboratory</b>                      |

Topics courses may be repeated for credit as the topics vary. The student should consult with their Graduate Advisor if in doubt.

<b>PHY</b>	<b>7403</b>	<b>Topics in Biophysics and Biomedical Physics</b>
<b>PHY</b>	<b>7503</b>	<b>Topics in Experimental Physics</b>
<b>PHY</b>	<b>7603</b>	<b>Topics in Condensed Matter Physics</b>
<b>PHY</b>	<b>7703</b>	<b>Topics in Space Physics</b>
<b>PHY</b>	<b>7803</b>	<b>Topics in Theoretical Physics</b>
<b>PHY</b>	<b>7903</b>	<b>Topics in Astrophysics</b>
<b>PHY</b>	<b>7973</b>	<b>Special Topics in Physics</b>
<b>PHY</b>	<b>7983</b>	<b>Current Topics in Physics</b>

- C. DOCTORAL RESEARCH (48 credit hours from among the following)
- |            |               |  |
|------------|---------------|--|
| <b>PHY</b> | <b>7001-3</b> | <b>Directed Research (minimum 6 hours; prior to passing qualifying exam)</b> |
| <b>PHY</b> | <b>7013</b>   | <b>Research Seminar (3 hours)</b>  |
| <b>PHY</b> | <b>7101-3</b> | <b>Doctoral Research (27 hours)</b>  |
| <b>PHY</b> | <b>7111-3</b> | <b>Dissertation (12 hours)</b>   |

The final Program of Study must be approved by the student's Dissertation Committee, Dissertation Advisor, Graduate Studies Committee, and submitted via the Department Chair to the Dean of the Graduate School. Students should periodically (**at least twice a year**) review the POS with their advisor and, once it is formed, with their dissertation committee.

The satisfactory progress of each student is followed by the advisor and the qualifying exam (QE) committee, but also by the Chair of the Graduate Studies Committee (GSC) through regular audits that are requested by the **semi-annual progress reports** submitted by the student. If a student fails to make good progress, the student's advisor as well as the student will be required to meet with the chair of the GSC and/or the Chair of the Department.

#### IV. SEMINAR AND NON-CREDIT REQUIREMENTS

##### A. PURPOSE

In order to promote general awareness of research activities and to share ideas between members of the Physics program, all students and faculty are expected to regularly attend Physics graduate program functions. Since the level of students' PhD activity is mostly based on their research proficiency, all students are expected to **attend as many seminars as possible beyond the required Research Seminar class that is taken for credits.**

##### B. SEMINAR REQUIREMENTS

The Research Seminar course (PHY 7013) is a 3-hour course and the credit hours are earned in the semester when the student officially enrolls for the class. However, to receive full credit a student must attend at least three semesters of PHY 7013. For example, a student could sign up in semester one, but is required to attend the seminars for at least two consecutive semesters after that. **Failure to do so will result in an "incomplete" grade or an "F" grade which would prevent graduation of the student or cause dismissal from the program, respectively.**

##### C. NON-CREDIT REQUIREMENTS

The following is a summary of requirements that must be completed to obtain the PhD degree in Physics.

1. Continued attendance at Physics (Graduate) Research Seminar.
2. Meet the Comprehensive Exam requirements to advance to the Oral Qualifying Exam.
3. Selection of Advisor and formation of Qualifying Exam/Dissertation committee by the end of year 1.
4. Advance to candidacy (i.e., pass the oral qualifying exam) by the summer of the second year.
5. Completion of Semi-Annual Progress Reports after passing the oral QE.
6. Completion of written dissertation.
7. Oral defense of dissertation.

#### V. SUGGESTED COURSE SEQUENCE FOR THE PHD PROGRAM \*\*\*Important\*\*\*

YEAR	TERM	PROGRAM OF STUDY
1	Fall	2 Core Courses (Electrodynamics And Classical Mechanics) + Research Seminar (9 hours)
	Spring	2 Core Courses (Quantum Mechanics I and Statistical Mechanics) + 1 Advanced Elective (9 hours) and attendance of Research Seminars
	Summer	Directed Research (3 hours) Complete the comprehensive requirement
2	Fall	2 Advanced Electives + Directed Research (9 hours) and attendance of Research Seminars Identification of Supervising Professor, Research topic and Qualifying committee.
	Spring	2 Advanced Electives + Doctoral Research (9 hours)
	Summer	Doctoral Research (3 hours) Passing Oral Qualifying Exam and advance to candidacy.
3	Fall	2 Advanced Electives + 1 Doctoral Research (9 hours)
	Spring	3 Doctoral Research (9 hours)
	Summer	1 Doctoral Research (3 hours)
4	Fall	2 Doctoral Research + 1 Doctoral Dissertation (9 hours)
	Spring	3 Doctoral Dissertation (9 hours) Dissertation completed & successfully defended by the end of summer of 4 <sup>th</sup> year

##### A. INDEPENDENT STUDY

**Up to six hours** of independent study are allowed and can be used in place of Advanced Elective courses. However, the recommendation is to limit the number of coursework taken as independent study to a minimum.

## B. TRANSFER OF CREDITS

Students matriculating with a Master's degree or transferring from another PhD program in Physics may request up to 30 credit hours to be transferred to the UTSA program. The request will be considered by the GSC which will recommend how many credit hours are approved for transfer. The application process requires the Transfer of Credit form as well as the syllabus of the courses for which the student requests transfer. The GSC will recommend approval/denial based on the material of the course compared to the material of the equivalent course at UTSA. If approved, the credit transfer request will be forwarded to the Graduate School for final approval. Note that the Graduate School has an independent evaluation process and may deny transfer even if the GSC has approved.

- Credit transfer (including grade) for the four core classes is allowed only from schools where a PhD program in Physics is in place. Students who transfer from schools that do not have a PhD program in Physics are required to either re-take the core classes or pass a placement exam for that class.
- Research credit hours (including seminars, directed or doctoral research) cannot be transferred. The following classes that have been used for Master's Degree credit cannot be applied toward the PhD: Directed Research and Independent Study.

### Conditions for transfer of credit:

1. Students must complete the form "[Transfer of Graduate Credit towards Doctoral Degree](#)"
2. The courses must have been completed with a "B" or better.
3. Coursework must be from an accredited university and have not been used in another degree program at UTSA.
4. An official transcript from the institution where the coursework was completed must be submitted.
5. All coursework must have been completed no more than six years before the degree was awarded.\*
6. Coursework is subject to approval of the appropriate Graduate Studies Committee and academic College in which the program is administered.
7. Courses must be defined as graduate-level work at the institution where the credit was earned.

*\* If courses exceed the six years limitation a separate [Time Limitation Petition Form](#). This form is reviewed by the GSC that decide whether to approve or not the petition based on the material covered in the expired course.*

Exceptions may be approved upon recommendation of the Graduate Advisor of Record and with the approval of the Graduate Studies Committee, the Department Chair, and the Dean of the Graduate School.

## VI. 99-HOUR CREDIT LIMITATION

The 75<sup>th</sup> Texas Legislature placed a 99-hour limit on the number of doctoral semester credit hours a student can obtain while receiving/eligible for funding support. The 99 credit hours are counted after the first 30 credit hours in the program (considered Master-level credit hours).

## VII. SELECTING A DISSERTATION ADVISOR

This is the **most important decision** taken by any students in the program. During the first semester of residence, students have the opportunity to attend an introductory orientation to learn about research opportunities in individual faculty groups. In addition, students are urged to meet with individual faculty to discuss research interests as early as the first semester. By the end of the first summer in the program or at the very latest by December of the second year, every student should have identified a faculty member who is willing to advise the student and to supervise research for the dissertation. In order to make appropriate progress toward completion of the PhD, it is important that the student initiates dissertation research as soon as possible, no later than the middle of the second year.

A student must submit to the Graduate Advisor of Record the [P1 form](#) selecting a Dissertation Advisor with the signed consent of that faculty member. **All students are expected to have selected the advisor and formed the QE committee before the end of the first year.** If extenuating circumstances have prevented a student from arranging a Dissertation Advisor by that time, the student can petition the GSC for up to a maximum of one semester additional time.

***A student who is not awarded additional time, or who has not been approved for a Dissertation Advisor following completion of the additional time will not be allowed to continue in the PhD program.*** The student may then petition the Department Chair for approval to transfer to the master program. See Master's Degree Option.

### **VIII. ATTENDANCE REQUIREMENT**

Students must attend classes and fulfill research credit hours. If a student cannot attend classes or fulfill research commitments and does not notify the Chair of the GSC, then their stipend may be suspended, and procedures will begin to ascertain whether or not the student should be dismissed from the Doctoral Program.

#### **A. LEAVE OF ABSENCE:**

Continuous full-time registration as a doctoral student is required unless a formal [Leave of Absence](#) is granted by the Dean of the college in which the student's program is administered. A leave of absence, not to exceed one year, may be granted for military duty or medical reasons. It may be granted for other reasons upon additional approval by the Vice Provost and Dean of the Graduate School. No degree examinations may be taken while a student is on a leave of absence. If the student has not yet advanced to candidacy for the doctoral degree, this request must be approved in advance of the leave by the graduate advisor. If the student has advanced to candidacy, the application must be approved in advance by the graduate advisor and the graduate associate dean of the college and dean of the graduate school. A leave of absence is required for Fall and Spring semesters (and/or Summer if doctoral program mandates Summer enrollment). A Leave of Absence Request should be submitted no later than or during the semester prior to the requested leave. Under no circumstances may a leave of absence be applied retroactively.

***A leave of absence will prevent the student from receiving student funding from their program and may affect ability to receive financial aid or loans and/or to defer payments on loans.*** Students should contact the Office of Financial Aid with questions regarding financial aid or loan status.

A student returning from a leave of absence must enroll for the following Fall or Spring semester or provide a written request for an extension of the leave of absence (a leave of absence may not exceed one year throughout the student's degree program). A student without an approved leave of absence who fails to register each semester will be considered to have withdrawn from candidacy for the degree. Approval of a Petition for Reinstatement will be required for reinstatement. For more information, visit the graduate school's [Petition for Reinstatement](#).

#### **B. ENROLLMENT:**

Students who receive support as Teaching Assistants or through most other forms of grants and support **MUST** be enrolled full-time. To fulfill this requirement a student must be enrolled for a minimum of 9 credit hours in each long semester and a minimum of 3 credit hours in the summer semester.

International students must be enrolled full-time throughout the course of study in order to maintain eligibility for their student visa status.

Students have a one-time option to [petition](#) to remain full time students at a reduced course load. This can be applied only once and for only one semester.

### **IX. SEMI-ANNUAL PROGRESS REPORT**

In order to assess student progress toward the Physics degree, [a semi-annual written progress report](#) will be submitted to the GSC by the student and the Dissertation Advisor. It is suggested that this report be submitted each Fall and Spring semesters will be reviewed by the GSC.

The major requirement of the semi-annual progress report includes the student meeting with their committee members to provide information

- Date of the meeting
- Year and Semester of Admissions
- Advisor's Name



- Date of last meeting
- Expected date of graduation
- Research Accomplishments since last meeting
- Plans for upcoming semester
- Attach a [Program of Study](#)

Each committee member must sign the form and the research advisor provides overall feedback on the student's progress.

## X. QUALIFYING EXAMINATION

The purpose of the Qualifying Examination (QE) is to determine if the PhD student has acquired the knowledge expected of a doctoral candidate in the area of physics and test the soundness of the research approach and skills. The QE has two parts: a comprehensive requirement and an oral qualifying exam. Satisfying the comprehensive requirement is a prerequisite to advance to the oral QE. Both parts need to be fulfilled in order to advance to candidacy.

### A. COMPREHENSIVE REQUIREMENT.

- A student must obtain a minimum of 2 "A" grades + 2 "B" grades in the four core classes (Classical Mechanics I, Statistical Mechanics, Electrodynamics, Quantum Mechanics I).
  - If after the first year a student fails to meet this requirement, they will be required to pass a written exam
    - *Scenario # 1.* 1 "A" and 3 "Bs" in the four core classes. The student is required to pass with a grade of "B" or better at least one of the written exams in any of the three core topics where the student received a "B". A student can take one, two or all three written exams, but they will be required to pass at least one.
    - *Scenario # 2.* No "As" and 4 "Bs" in the four core classes. The student is required to pass with a grade of "B" or better at least two of the written exams in any of the four core topics where the student received a "B". A student can take one, two, three or all four written exams, but they will be required to pass at least two.
- *For students who are required to take the written exam, it will be administered in four parts* (one for each core class) at the beginning of August of each year.
- Students who do not achieve a grade of "B" or better in a core class(es) will not be allowed to take the written exam for that/those core topics and will be required to re-take the class (or classes) and achieve a proficiency level of "B" or better.
- In case a student fails the written exam, they can re-enroll in the core class(es) for a chance of getting the grade(s) needed to fulfill the 2 "A" + 2 "B" requirement AND (in case they fail) take the written exam once more. *THE CORE CLASSES CANNOT BE RE-TAKEN FOR CREDIT.*
- A student cannot repeat each attempt more than once. If a student fails to achieve the 2 "A" grades + 2 "B" grades or pass the equivalent requirement for the written exam (Scenario # 1 or Scenario #2), they will not advance to candidacy and will be given the option to obtain a terminal MS degree.
- For students entering the program with a MS degree in Physics from another University or having taken the four required graduate core classes at other institutions, the requirement to take or not a written QE will be taken on a case by case basis by the admission committee.
- For students entering the program with a MS degree in Physics from the University of Texas at Brownsville the 2"A" + 2"B" rule will apply considering the equivalent core classes they have taken at UTB. The Physics program at UTB has already aligned its syllabi in graduate Classical Mechanics, Statistical Mechanics, Quantum Mechanics and Electrodynamics to the ones used at UTSA.

## **B. ORAL QUALIFYING EXAM.**

Once a student has successfully completed the comprehensive requirement, they will advance to the oral qualifying exam. A student will schedule the oral QE after having selected a Dissertation Advisor and assembled a Qualifying Exam Committee (QEC). The QEC must be composed of 5 members. **The chair of the committee should be a faculty member other than the research advisor.** At least 3 members must be core faculty of the Doctoral Physics program at UTSA. At least one member must be external to the university. This external member must hold a doctorate degree and must hold a position at an academic institution or in industry. The fifth committee member can either be a core faculty member, from another department at UTSA or SwRI, or a second outside member. Approval of former UTSA faculty/adjunct faculty who are now affiliated with another institution must be reviewed and approved by the GSC for potential conflicts of interest prior to approval. **Students must complete their QE by the end of their 3<sup>rd</sup> year.**

For students whose dissertation advisor is an adjunct faculty at SwRI, the dissertation committee MUST include at least one non-adjoint UTSA graduate faculty member of the Physics Department. The student should complete, acquire signatures from all QEC members and submit the QEC form as soon as the QEC is assembled ([Form P2](#)).

***The oral QE should be scheduled within 12 months of the successful completion of the comprehensive requirement.***

The oral QE will consist of the presentation of the student research plan and will test their depth of knowledge of their research field as well as their preparation to undertake the research project.

To fulfill the requirements for the oral QE the student must provide a research proposal that conveys

- **Cover page listing title, student's name, committee member's names, and date**
- **the motivation for the research undertaken**
- **the depth and breadth of knowledge of the student in the subject**
- **the state-of-the-art regarding the research topic**
- **preliminary results obtained prior to the QE and**
- **a research plan**
- **comprehensive bibliography**

The members of the QEC will be presented with the completed form of the proposal **15 working days** prior to the scheduled oral exam. The 15 working days prior specifically excludes days which fall on the weekend or holidays (i.e. official university holidays). Note that if you fail to provide your QE proposal to your committee members in a timely manner, members may refuse to review your proposal or sit for your oral examination. Each committee member will test the examinee on the proposal and the student will be required to defend it. A majority passing vote by the committee is needed for the student to pass and advance to candidacy. The QEC may also suggest remediation steps to be taken by the student to correct deficiencies perceived during the oral portion of the exam.

These will be put into written form and the Dissertation Advisor, the student's Qualifying Exam will oversee progress with a final report being sent to the GAR upon completion.

All members of the QEC will complete the [Qualifying Exam Rubric](#). The rubric is for the assessment of the knowledge of the state-of-the-art in the physics PhD students' research topic and their proposed research plan.

Upon successful completion of the oral QE the student will advance to candidacy (upon submission of the formal paperwork for the advancement to candidacy). If a student fails the oral QE, they will have six months to re-attempt it. The student may be required to take additional coursework or satisfy other requirements determined by the QEC and approved by the GAR. In case the student fails it a second time, they will not advance to candidacy and will be given the option to obtain a terminal MS degree.

## **XI. MASTER'S DEGREE OPTIONS**

### **A. UNSUCCESSFUL DEFENSE OF QE**

A doctoral student who has failed either component of the QE or the dissertation defense may petition the Department Chair for approval to transfer to the MS Program in Physics, to receive a Master Degree. The student must complete all degree requirements for the MS degree, including the comprehensive examination.

#### **B. INTERIM MASTER DEGREE**

Students who are admitted to doctoral programs directly from the bachelor's-degree level (without the requirement of a master's degree) and who want to obtain a Master's degree as part of the PhD program, must meet the following requirements:

1. Complete the appropriate set of 30 semester credit hours of coursework, matching to the satisfaction of the appropriate Graduate Studies Committee, the 30 hours required for regular master's degrees at UTSA in the specified area.
2. Pass a qualifying examination related to the above 30-semester-credit-hour program, administered under the standard UTSA regulations. (If the Doctoral Qualifying Examination has been administered and passed, this requirement has been met.)
3. Apply for the master's degree at the time and in the manner prescribed for regular master's degrees at UTSA
  - a. Present to the graduate school, through COS-Dean's office.
    - i. An approved [program of study](#) for the master's degree
    - ii. Certification of having passed the Qualifying Examination ([Form P3](#))
    - iii. A transcript (or certification from the Office of the Registrar) showing a grade point average of 3.0 or better and current good academic standing.
    - iv. Certification of removal of any conditions imposed on admission (if applicable)

Courses counted as indicated above toward the master's degree may also be included in the overall requirements for the doctorate degree. More information can be obtained at by visiting the [UTSA Graduate School](#).

#### **XII. ADVANCEMENT TO PHD CANDIDACY**

Upon completion of the Qualifying Examination and receipt of the signed Approval form ([Form P3](#)) from the QEC and Dissertation Supervisor, the student can advance to candidacy for the PhD. The GSC Chair will notify the student of their advancement to candidacy. If advancement to candidacy is not recommended by the QEC and the Dissertation Supervisor, the student will be notified by the GSC within two days, and the student may make a written appeal to the GSC within two weeks of the recommendation.

As soon as the student is notified of the recommendation to advance to PhD candidacy, the student should apply for advancement to candidacy ([Form P4](#)).

The criteria for admission to candidacy are:

1. Completion of all required core course work.
2. Fulfillment of the Comprehensive Requirement and successful completion of the oral Qualifying Exam.
3. Approval by the GSC, the Department Chair, and the Dean of the Graduate School and the Office of the Provost and Vice President for Academic Affairs.

**Any student who is admitted to the program to earn the PhD should be advanced to candidacy within two years after enrollment. Any student who has not been advanced to candidacy within two years can continue in the program only after individual review and recommendation by the GSC to the Department Chair, and the Dean of the Graduate School.**

#### **A. DISSERTATION COMMITTEE**

Upon advancement to candidacy the student must appoint their Dissertation Committee ([Form C1](#)). The Dissertation Committee has the responsibility for general supervision of the student's research and ultimately for certifying to the Dean of the Graduate School that an acceptable dissertation has been submitted and that all degree requirements have been completed. The committee is selected by the student in consultation with their Dissertation Advisor and with approval of the GSC, the Department Chair, and the Dean of the Graduate School and should be appointed soon after

the Qualifying Examination is passed. The requirements for the composition of the dissertation committee are the same as those applied to the QE committee. **The Dissertation Advisor chairs the committee.** The formal approval of the Dissertation Committee is included in the Application for Advancement to Candidacy ([Form P4](#))

Although the QEC and the Dissertation Committee can technically be different it is **strongly recommended** that the membership of the committee be the same. Thus when assembling the QEC the students and advisors should keep in mind that such committee should carry on as the Dissertation Committee.

While the supervising professor provides day-to-day guidance to the student, all members of the committee should be available for consultation, and the student should feel free to ask for advice. Both the Dissertation Committee and GSC have the general responsibility for monitoring the student's research progress through the [Semi-Annual Progress Report](#) and Program of Study. The student and their advisor should be proactive with ensuring these meetings take place in a timely fashion.

If it is necessary to change the membership of the dissertation committee prior to completion of the dissertation, the student should consult with the Graduate Advisor of Record before initiating any action. Changes in the committee should be completed well in advance of the final oral examination.

#### **B. DISSERTATION PROPOSAL**

As part of the Qualifying Examination, the student must present a dissertation proposal to the Dissertation Advisor and the Qualifying Exam/Dissertation Committee for approval. The dissertation proposal will in most cases coincide to the proposal written for the oral component of the qualifying examination, with revisions suggested by the QEC. The Dissertation Committee must sign the title/signature page of the approved Dissertation Research Proposal ([Form C2](#)). This signed form page is submitted along with the Dissertation Proposal, the signatures of the GAR, and the Department Chair, to the Dean of the Graduate School.

#### **XIII. FINAL ORAL EXAMINATION (DISSERTATION DEFENSE)**

When the dissertation is in final form, it is circulated to the Dissertation Committee. The Dissertation has a specific format required by the Graduate School, thus contact the Graduate School's office for information about the format requirements (information can also be obtained from the Graduate School [website](#)).

When all members of the committee agree, the final oral exam (defense of dissertation) should be scheduled. The request for scheduling of the final oral exam is to be submitted to the Physics GSC **at least 15 working days prior to the defense and should be advertised as extensively as possible to the public.** At the same time the dissertation document should be provided to the dissertation committee members no later than 15 working days prior to the defense. The 15 working days prior specifically excludes days which fall on the weekend or holidays (i.e. official university holidays). Note that if you fail to provide your QE proposal to your committee members in a timely manner, members may refuse to review your dissertation or sit for your oral examination.

The defense of the doctoral dissertation consists of two parts. The first is a public seminar that is open to all faculty and students. The Program Manager posts notices of the seminar at least one week prior to the exam. Immediately following the seminar, the student meets privately with the Dissertation Committee to answer any questions that the committee members may have. Once the dissertation is approved by the Dissertation Committee, the committee chairperson notifies the Department Chair and the Dean of the Graduate School of successful completion of the exam (defense) and that all degree requirements have been met using the appropriate form ([Form C3](#)). This must be done no later than three weeks prior to the end of the semester to include the completion of final POS ([Form C4](#)).

All members of the Dissertation Committee will complete the [Dissertation Rubric](#). The rubric is for the assessment of the physics PhD students' independent research skills.

The Graduate School Office provides guidelines on the format of the dissertation and all signature pages and forms for notification of successful completion of all degree requirements and submission of the dissertation to the library.

#### **XIV. GRADUATION**

In order to graduate, students must have **at least one manuscript published in a peer-reviewed journal, where they are listed as first or main author.**

Prior to approving the forms for graduation, the Gar will complete the following steps which must be fulfilled by all students:

1. Carry out an exit interview. Students can access the exit interview by completing the online [form](#).
2. Provide the most current CV to the GAR and Program Manager.
3. Provide the information regarding employment after graduation (when available).

#### **XV. PROGRESS TOWARD THE DEGREE**

All students are expected to make reasonable progress toward the degree in a timely fashion. It is the responsibility of the students and their dissertation advisors that substantial progress towards the degree is made and monitored regularly. Once student reach the seven-year milestone in the program, every semester (Fall, Spring, Summer) an evaluation by the GSC, Department Chair, Associate Dean for Graduate Studies Students and/or Vice Provost and Dean of the Graduate School will result in students being placed in one of the following categories:

1. Student is in good academic standing and sufficient progress is being made towards defending dissertation thus continuation is recommended.
2. Student is in good academic standing but insufficient progress being made towards defending dissertation, thus the student will be referred to academic and dissertation coaching.
3. Student is in good academic standing but insufficient progress being made toward defending dissertation thus student should be dismissed from program

Student should consult their ASAP account to verify their year of admission. Consideration is made for students who have filed a leave of absence during the first 7 years of their program of study.

#### **XVI. RECOMMENDED SEQUENCE OF EVENTS FOR COMPLETION OF PHD REQUIREMENTS**

##### **YEAR ONE**

1. Arrival at UTSA – Meet Department Chair, Physics & SwRI core faculty & hear about faculty research programs at the PhD Student Orientation.
2. Meet with Physics Graduate Advisor of Record for the PhD Program.
3. Submit any graduate level classes to be transferred to the Physics GSC for preliminary approval & take placement exams (if necessary).
4. Complete requirements for unconditional admission (if necessary).
5. Fulfill the core classes' requirements for the qualifying exam.
6. Select Dissertation Advisor and form the (partial) Dissertation Committee before end of Fall semester.
7. Meet with GAR and/or Program Manager to review POS and academic progress.

##### **YEAR TWO**

1. Complete the majority of course work.
2. Form Dissertation Committee – at least 5 members, including one external member.
3. Initiate research project for dissertation.
4. Write Qualifying Examination proposal and submit to Dissertation Advisor & Dissertation Committee for approval.
5. Schedule, take & pass Oral Qualifying Examination administered by Qualifying Examination Committee before August.
6. Be recommended for Advancement to Candidacy by the Physics GSC.
7. Meet with GAR and/or Program Manager to review POS and academic progress.

#### YEAR THREE

1. Make constant and substantial progress in the research project.
2. Schedule at least one Dissertation Committee meetings.
3. Submit semi-annual progress reports.

#### YEARS FOUR & BEYOND (if necessary)

1. Make constant and substantial progress in the research project.
2. Continue to meet with Dissertation Committee twice yearly.
3. Submit semi-annual progress reports.
4. Complete research.
5. Prepare dissertation.
6. Complete dissertation, get Dissertation Committee approval.
7. Set date for Dissertation Defense.
8. Work with the Department Program Manager to notify Graduate School Office and publish the time, date, place and title of Defense.
9. Submit copy of dissertation to Dissertation Abstracts for publication.
10. Submit required and personal copies of dissertation for binding.
11. Complete exit interview with GAR.

### **XVII. FINANCIAL ASSISTANCE INFORMATION**

#### **A. Graduate Assistantships**

Students accepted into the program may receive support in three forms:

1. University support for first academic year, including stipend, tuition and some fees; this stipend has both research and teaching responsibilities. The stipends are awarded competitively. The stipend is paid monthly contingent upon satisfactory progress toward the PhD degree. The stipend cannot be received simultaneously with other forms of support.
2. Teaching assistantship. With this support the students are expected to fulfill their teaching responsibility of 2 introductory laboratories per semester or equivalent teaching assignments. Support for tuition is not provided to Teaching Assistants beyond the first year in the program.
3. Research assistantship. This form of support is typically provided by external funds available to individual advisor and the dollar amount may vary depending on the funding agency. The terms of this support depend on the type of funding (scholarship, fellowship, etc.) and the funding agency (e.g., NSF, NIH, DoE, etc.) This form of support requires the students to dedicate their time to research and their coursework.

Students receiving University support or research assistantships **MUST be registered full time**; 9 hours per long semester and 3 hours per summer. Students supported by external funds can be registered for a variable number of credit hours each semester. In order to receive any type of assistantship students **MUST** maintain good academic standings and they have to make good progress towards the obtainment of their degree.

Outside employment for students receiving University support is not permitted, except under conditions of substantiated hardship. Approvals for outside employment must be obtained from the Dissertation Advisor, the Graduate Studies Committee (GSC), the Department Chair and the Office of the Provost and Vice President for Academic Affairs.

#### **B. Teaching Assistantships**

During the first year, students who are not supported by an external grant will be required to provide Teaching Assistantships which may include at least two introductory Physics laboratory or recitation for various classes, and/or

assisting an instructor in organized lecture classes (e.g., grader, tutor, etc.). The teaching duty effort will correspond to the equivalent of 19 hours/week.

Teaching assistantship is one possible way for students to receive support for their studies. However, since the post-degree careers of Physics graduates are likely to involve some teaching, students are encouraged to be involved as Teaching Assistants before obtaining their degree.

Becoming a teaching assistant should be considered a great and rewarding responsibility. As a TA, you will be granted access to an office located in the MS building for grading and storing any supplies/papers, a separate location for office hours. Also, you will have a chance to improve your public speaking skills, refreshing the foundation of physics, and improve your time management skills. On the other hand, as a Teaching Assistant, there are some requirements that are expected of you consisting of weekly meetings, maintaining a good GPA, and maintain good evaluations from your students.

## **XVIII. GENERAL ACADEMIC REGULATIONS**

Rules concerning registration, late registration, adding classes, dropping classes, and auditing classes are all found in the schedule of classes. Academic standing, cancellation of enrollment, withdrawal procedures, reinstatement in the University and student classification are also addressed in the Graduate catalog.

### **A. GRADE POINT AVERAGE**

To remain in **good academic standing** a minimum grade point average of 3.0 (on a 4.0 scale) must be maintained in each of the following:

1. all coursework completed at UTSA
2. graduate courses in the student's major
3. graduate courses in the student's support field.

In computing grade point averages, grades from other institutions are not used.

### **B. ACADEMIC PROBATION AND DISMISSAL**

#### **1. *Academic Probation***

Academic probation describes the standing of a student at the graduate level who is in one of the following categories:

- A student who fails to achieve a grade point average in any term at UTSA of 3.0 or higher, irrespective of level of courses taken.
- A student who received a grade of "D" in any course in a term.
- A student who does not meet all requirements for unconditional or regular admission and who, by special action, is admitted on academic probation.
- A student who has been reinstated following academic dismissal.
- To graduate, all graduate students must have a grade point average of at least a 3.0 (on a 4.0 scale).

Academic probation is cleared only when none of the above criteria apply and when the student achieves an overall grade point average of 3.0 as a graduate student at UTSA. Students on academic probation are encouraged to discuss their status with their academic advisors.

**A student on academic probation cannot be supported as a Teaching Assistant or as a Graduate Research Assistant.**

#### **2. *Academic Dismissal***

Academic dismissal occurs:

- When a student at the graduate level earns a grade point average of less than 2.0 in any term
- When a student at the graduate level earns a grade of "F" in any course
- When a student at the graduate level is admitted on probation with conditions and fails to meet a condition

- When a student at the graduate level who is on academic probation during a term would again be placed on academic probation under the provisions of academic probation set forth above in the subsequent term. If, however, the student's UTSA grade point average for the term is at least 3.0, the student will continue on academic probation.

**A student on academic dismissal cannot be supported as a Teaching Assistant or as a Graduate Research Assistant.**

**XIX. GRIEVANCE PROCESS:**

Students who wish to discuss problems, concerns or file a formal grievance in regards to academics or research matters, should in general follow this line of contacts:

1. Dissertation Advisor  
↓
2. Program Manager  
↓
3. Graduate Advisor of Record  
↓
4. Associate Chair of the Department  
↓
5. Chair of the Department  
↓
6. Associate Dean for Graduate Studies (College of Sciences)

In case the complaints or grievance is in regard to one of the individuals listed above the students should contact the subsequent person in the list.