UTSA THE UNIVERSITY OF TEXAS AT SAN ANTONIO

Department of Chemistry

Ph.D. Program Handbook

Spring 2009

Chemistry Ph.D. Program Handbook
Spring 2009
Table of Contents

Program Overview

The Ph.D. degree in Chemistry is offered by the Department of Chemistry at The University of Texas at San Antonio. The primary objective of the program is to educate students in a broad range of chemistry sub-disciplines and to focus on one or two specialized areas. This training will ensure that graduates are well prepared to participate and contribute to the chemistry profession in all its facets.

The curriculum is designed to provide an overview of contemporary chemistry through the Core and Elective courses, participation in research seminars and colloquia, teaching opportunties, and, of course, interactions with faculty. All students are required to take courses in Analytical Chemistry, Biochemistry, Inorganic or Organic Chemistry, and Physical Chemistry, as well as a course in Ethics in Research and Teaching. Additional required elective courses are normally taken in fields close to the student's area of specialization. Students will have access to laboratories located on the 1604 campus in the Biotechnology, Sciences and Engineering Building (Main Campus) or in the Physical Sciences Laboratories (West Campus).

Disclaimer

The information contained in this Handbook does not consitute a contract, expressed or implied, between any applicant, student or faculty member and the Ph.D. program in Chemistry, the Graduate School at The University of Texas at San Antonio or The University of Texas System.

Revisions

The Department of Chemistry reserves the right to alter and/or clarify the requirements and procedures set forth in this handbook at any time. Any changes become effective upon approval by the M.S. and Ph.D. Programs Committee and, if necessary, by faculty vote and University approval. The changes apply to prospective students and may apply to those already enrolled in the Program. **Suggestions from students and faculty for improving the contents of this handbook are encouraged.** Please forward your

suggestions to the Department of Chemistry's Graduate Advisor of Record, Department of Chemistry, The University of Texas at San Antonio, One UTSA Circle, San Antonio, Texas 78249-0698.

Typical Timeline for the Ph.D. Degree

The procedures and requirements leading to the Ph.D. degree in chemistry are listed below in the recommended chronological order.

Application

All applications for admission to the Ph.D. program must made to the Graduate School (not the Department of Chemistry). The Department of Chemistry encourages potential applicants to contact the Graduate Advisor of Record or other members of Faculty before submitting applications.

Minimum requirements for admission

- Minimum grade point average (GPA) of 3.0 in the last 60 hours of undergraduate college coursework
- Combined general GRE score >1000
- At least two strong letters of recommendation
- Meaningful statement of research interests and career goals (250-500 words)
- Payment of application fee

When applicable:

- TOEFL score (>550 paper/173 computer)

More details about the GRE and TOEFL may be found at http://links.utsa.edu/graduate/FutureStudentsAcademicPrograms/testInformation.html

Upon official admission by UTSA, the student will receive a formal letter of appointment from the Department of Chemistry. This letter stipulates the terms of the appointment and financial support.

Continued support is contingent upon the student remaining in good academic standing (see Academic Standing below) and making satisfactory progress towards the Ph.D. degree according to the timeline listed below. The Department of Chemistry's M.S. and Ph.D. Programs Committee is responsible for evaluating academic standing and progress and for recommending continued financial support.

Orientation

The Departmental orientation for new Ph.D. students takes place in the middle of August. Attendance is mandatory. Topics typically include a general description of the graduate program, courses taught in the Fall semester, and a questions and answer session. Studies for the Ph.D. commence in the Fall semester each year.

Year 1, Fall semester

- Begin coursework
- Assume Teaching Assistant duties
- Participate in Introduction to Chemical Research
- Select doctoral research advisor (Supervising Professor) by the end of the semester
- Attend departmental seminars

Year 1, Spring semester

- Continue coursework
- Continue Teaching Assistant duties
- Attend departmental seminars
- Select Doctoral Studies Committee

Year 1, Summer session

- Begin full-time research
- Develop laboratory skills necessary for dissertation research

Year 2, Fall semester

- Complete core coursework
- Select Doctoral Studies Committee
- Present and defend Topic Seminar
- Begin writing Dissertation Research Proposal
- Submit Program of Study
- Attend departmental seminars and research colloquia
- Continue dissertation research

Year 2, Spring semester

- Submit and defend Dissertation Research Proposal
- Pass Qualifying Examination
- Attend departmental seminars and research colloquia
- Continue dissertation research

Year 3

- Conduct research as specified in the Dissertation Research Proposal
- Be admitted to candidacy
- Write and defend Independent Research Proposal(can be based on Topic Seminar)
- Attend departmental seminars and research colloquia
- Continue dissertation research

Years 4 and 5

- Complete dissertation research
- Write Dissertation
- Submit Dissertation to Doctoral Studies Committee for approval
- Defend Dissertation (Oral examination)
- Submit Dissertation to Graduate School
- Attend departmental seminars and research colloquia

Program Administration

The Dean of the Graduate School at The University of Texas at San Antonio has overall responsibility for the Ph.D. Program in Chemistry. All doctoral work is subject to approval by the Graduate Council and by the Deans. The graduate faculty in the Department of Chemistry, along with the M.S. and Ph.D. Programs Committee, and Graduate Advisor of Record, are responsible for curriculum development and on-going review.

The Ph.D. Program is supervised by the M.S. and Ph.D. Programs Committee comprising members of the faculty, including the Graduate Advisor of Record. The M.S. and Ph.D. Programs Committee is responsible for establishing admission requirements, recommending admission of applicants, overseeing academic curricula, monitoring students' academic progress, attesting eligibility for admission to candidacy for a degree, and verifying to the Graduate Council that the student has fulfilled all requirements for the awarding of the degree.

The day-to-day administration of the Ph.D. program is the responsibility of the Graduate Advisor of Record (GAR). The GAR advises all doctoral graduate students, maintains records, and represents the program. Questions about degree requirements and academic policies should be directed to the GAR, who may consult with the M.S. and Ph.D. Programs Committee.

Requirements and Regulations

Students enrolled in the Department of Chemistry's Ph.D. Program are subject to all established requirements and regulations of the Graduate School of The University of Texas at San Antonio. Refer to the Program Overview section of this Handbook for advice on determining which regulations may apply to your particular circumstances.

Students are strongly encouraged to refer to the current UTSA Graduate Catalog for guidance. This catalog is available in the Department of Chemistry's office and also on-line at http://www.utsa.edu/gcat/.

Residency requirement

To establish residency, each doctoral student must spend at least two consecutive Semesters (Fall and Spring, Summer Terms I and II and Fall, or Spring and Summer Terms I and II) in residence as a full-time student taking a minimum of nine Semester credit hours each residence Semester. This stipulation is based on the premise that the scholarship and proficiency required for a Ph.D. degree in Chemistry are best acquired through consistent and concentrated periods of dedicated research efforts in the University environment. In addition, the student must be registered for the CHE 5981 Graduate Seminar in Chemistry for at least eight credit hours (one credit hour per Semester).

Time Limits

Students have six years from the term of original registration to complete their Ph.D. degree program under the catalog in effect at the time of their initial registration. Financial support is provided for a maximum of five years and requires maintanance of good academic standing. Students are strongly encouraged to complete their Ph.D. requirements within four to five years. Longer times may require prior coursework to be repeated. These time limits may be extended for a maximum of three years for students participating in military service.

Credit Hour Requirements

Students in the Department of Chemistry's Ph.D. program must complete all of the required courses outlined in the section of this Handbook entitled "Coursework Requirements". Students must complete a Program of Study that includes a minimum of 86 semester credit hours of graduate coursework and achieve an overall GPA of at least 3.0.

Waiver of Courses (Credit Transfer)

With the approval of the Graduate School, graduate credit hours (with grades of B or higher) from other Universities may be accepted *in lieu* of required courses. In addition, certain required courses may be waived based on the student's previous graduate course work. These hours will be accepted in the form of credit for the course material rather than by application of credit hours to the student's transcript. Students are responsible for requesting such waivers. This process involves the submission by the student to the GAR, a brief letter of petition, course description and a copy of the relevant syllabus for each course for which credit transfer is sought Upon approval by the M.S. and Ph.D. Programs Committee, a formal petition to Associate Drean for Graduate Affairs in the College of Sciences will be prepared for final ratification by the Dean of the Graduate School. Credit transfer courses are not included in the computation of a student's GPA.

English Language Requirements

Students are required to possess a competent command of written and spoken English. For international students this requirement is met by obtaining or exceeding TOEFL scores listed below.

The UTSA Graduate Catalog (2005-2007) states: "The English Language Assessment Procedure (ELAP) is a mandatory UTSA assessment for incoming international students whose Test of English as a Foreign Language (TOEFL) scores are between 500 and 600 (paper version) or 173 and 250 (computerized version). ELAP tests academic language skills in the areas of reading, writing, listening, and speaking. The test is administered

during orientation week at no charge to the student. A registration hold is placed on students until the test is successfully completed.

Students who are required to take English for International Students (EIS) classes and do not register for them or drop them before they are successfully completed will be withdrawn from the University and will jeopardize their visa status. Once students successfully complete the EIS classes, the registration hold is removed from their record."

Ethics Course Requirement

Students will be required to fulfill any course requirements, for example "Compliance Training", as determined by the Graduate School.

Supervised Teaching Requirement

A minimum of two Semesters of teaching in one or more disciplines of chemistry, under the supervision of one or more members of Faculty, is required of all doctoral students. This requirement is normally fulfilled as a teaching assistant in either general chemistry or organic chemistry laboratory courses.

Registration

The Office of the Registrar schedules and announces the timing of the registration process to all students, Departments, Departmental Chairman, and their assistants prior to the start of each Semester. Information regarding registration can be found in the ASAP section https://asap.utsa.edu/of the UTSA website http://www.utsa.edu/. For individual registration concerns, students should consult the Department of Chemistry's GAR.

A student must register each Semester and Summer Terms that s/he is enrolled in the PhD program. This includes courses in Research, Thesis, Dissertation and Graduate Seminars. No student can receive credit for a course for which s/he has not registered.

Semester Credit Hours

One Semester hour of credit is earned through:

1. Lecture clock hours: 15 to 18 (normally 16)
2. Laboratory clock hours: 45 to 60

A course, for example, has a credit value of three Semester credit hours if the class meets for three lecture hours per week during Fall or Spring Semesters.

Full-Time Status

The minimum full-time course load for a Semester is nine Semester credit hours and for the Summer Term, six credit hours. The maximum load is individually determined by the student's Faculty advisor and the M.S. and Ph.D. Programs Committee. If a student is employed as a Teaching Assistant or Research Assistant, the course load may be reduced accordingly. In order to qualify for a Teaching Assistant position, students must register for at least 6 credit hours. Ph.D. students normally will not be Teaching Assistants over the Summer Terms because this time should be dedicated to research.

Doctoral students are required to submit a Request to Travel Authorization (RTA) form in advance for out-of-town travel.

The Ph.D. program in Chemistry is a full-time degree program. Students admitted to the Ph.D. program will receive a stipend and are not permitted to have any other employment beyond their Teaching/Research Assistantships.

Teaching/Research Assistantship Guidelines

Students who receive funding through teaching assistantships or research assistantships also receive tuition and fees to cover the nine credit hours taken in the Fall Semester, nine credit hours taken in the Spring Semester and six credit hours in the Summer Terms. The only exception is for students who are in their final Semester prior to graduation, during which registration for the final dissertation course will be considered a full-time course load. The minimum number of final dissertation credit hours for a Ph.D. is three; a student may register for final dissertation credit hours only once.

Grading System

The following grading system is used for all coursework:

Grade Symbol	Grade Points	Meaning of Grade Symbol
A	4	Outstanding
B	3	Above average
C	2	Average (below average graduate work)
D	1	Below average (failing graduate work)
F	0	Failure (failing graduate work)
CR	0	Credit – indicates successful credit by examination or through Faculty evaluation of class tests, assignments, *etc*.
NC	0	No Credit – indicates unsatisfactory progress

Credit hours are awarded only for the grades of A, B, C and CR. All A to F grades are included in the calculation of the GPA. CR/NC grades and their associated course credits do not contribute in any way to the GPA calculation. A grade of F in a course will automatically result in dismissal from the Ph.D. program. Note that in the calculation of GPA, only UTSA courses are included. Students must maintain a GPA of 3.0 or above throughout candidacy.

Other grades may be given that do not contribute to the calculation of the GPA. A grade of W means Withdrawal and indicates that the student was passing at the withdrawal or drop. A grade of IN means INcomplete and can be assigned according to university guidelines. A grade of NR means No Report and can only be assigned by the Registrar. A grade of RP means Research in Progress and is applicable to Doctoral Dissertation courses. When the dissertation is complete, the RP grades will be changed to letter grades up to the maximum number of semester credit hours approved for the specific degree.

Academic Standing

A student's academic standing is defined as good standing, academic probation, or academic dismissal.

Academic probation describes the standing of a student in one of the following categories:

1. A student who fails to achieve a GPA of 3.0 or higher in any term at UTSA, irrespective of level of courses taken.
2. A student who received a grade of "D" in any course in a term.
3. A student who does not meet all requirements for unconditional or regular admission and who, by special action, is admitted on academic probation.
4. A student who has been reinstated following academic dismissal.

Academic probation is cleared only when none of the above criteria apply and when the student achieves an overall GPA of 3.0 as a graduate student at UTSA. In order to graduate, all graduate students must have a grade point average of at least a 3.0 (on a 4.0 scale). Students on academic probation are encouraged to discuss their status with their academic advisors and/or GAR.

Academic dismissal occurs when a student at the graduate level:

1. Earns a grade point average of less than 2.0 in any term.
2. Earns a grade of "F" in any course.
3. Currently on academic probation and would again be placed on academic probation under the provisions set forth above. If, however, the student's UTSA grade point average for the term is at least 3.0, he or she will continue on academic probation.

Standards for Graduate Support

Students are guaranteed support as Teaching Assistants (TA) and/or Research Assistants (RA), unless they are placed on support probation for a second consecutive term due to:

academic probation

not making adequate progress towards degree

not completing an average of 8 credits/long semester (16 credits/academic year)
not completing Qualifying Exam by end of 5th semester
not completing the Topic Seminar by the end of the 5th semester
not completing the Independent Research Proposal by the end of the 7th semester

Summer terms are not counted as semesters in the above requirements.
Students are not guaranteed financial support after their 5th year in the Ph. D. program.

Withdrawal

Permission for withdrawal from the Ph.D. program and the Graduate School may be granted by the Dean of the Graduate School. A student who wishes to withdraw should complete and sign a Withdrawal form available from the Enrollment Services Center. Students who withdraw during a regular "drop period" will receive a grade of "W" in all classes. Students who withdraw after the regular drop date with a passing grade will receive a "W", while those who are failing will receive an "F". Students will then be subject to UTSA's academic standing probation and dismissal regulations. Students who withdraw should refer to the regulations on refunds of tuition and fees, readmission policies, and requirements for maintaining registration.

Leave of Absence

A leave of absence from the Ph.D. program for a maximum of one year may be granted by the Dean of the Graduate School, subject to prior approval by the M.S. and Ph.D. Programs Committee. Such permission will be granted only for extenuating circumstances and will not be granted when degree progress is unsatisfactory or when a student is on academic probation. Students must apply for a leave of absence to the GAR in writing and include the reason(s) for the request and the expected time of absence. If the request for leave is approved, the student will be notified by letter from the Dean of the Graduate School and complete the Admistrative Clearance Form provided by the Graduate School. The student should also drop all courses for which they are currently enrolled.

Non-registration

A student who fails to register for one or more consecuctive semesters and does not elect to apply for a leave of absence can be dismissed from the program. If dismissed, the student may re-apply for admission. Such an application will be subject to the same requirements, procedures, and acceptance considerations that apply to first-time applicants.

Transfer Between Graduate Programs

Any student who wishes to change the course of study from one graduate program to another must make written application to that program. Such an application will be subject to the same requirements, procedures, and acceptance considerations that apply to first-time applicants. Students who wish to apply for such a transfer must have an interview with the Dean of the Graduate School.

Graduation

The degree of Doctor of Philosophy is awarded by the Board of Regents upon the satisfactory completion of a prescribed Program of Study as documented by the M.S. and Ph.D. Programs Committee, recommendation of the Graduate Council, and certification of the candidate by the Dean and President to the Board of Regents.

Misconduct

Students are responsible for knowing and observing the University's "Procedures and Regulations Governing Student Conduct and Discipline" and the "Rules and Regulations of the Board of Regents of The University of Texas system". This and additional information can be found in the UTSA catalogs file://localhost/(http/::www.utsa:edu:gcat) which are available on-line.

Financial Support

Students in the Department of Chemistry's Ph.D. Program may be supported from several sources, such as the Department of Chemistry's Ph.D. Program, Supervising Professor's research grants, Teaching Assistantships (TA), Research Assistantships (RA), subject to

being in good academic standing. It is the intention of the program to ensure that all students are supported for five years. Five years of support are guaranteed so long as a student remains in good academic standing.

Special conditions apply to students receiving support from the Department of Chemistry's Ph.D. Program. This policy does not apply to those receiving support through their advisor's research programs, or other sources. If a student receives support from the Department of Chemistry's Ph.D. Program, s/he will receive a letter containing the following information. Students are expected to agree to these terms as a condition of accepting support.

Students are awarded financial assistance in the form of a twelve-month stipend, the dollar amount of which is specified in the initial offer letter, and which may be subject to annual increases. In addition, the Department will cover student tuition and fees. These stipends typically require appointment as a Teaching Assistant (TA) or Research Assistant (RA). This award requires official acceptance by UTSA and is subject to all stipulations in the Department of Chemistry's Ph.D. Program Academic Policies and Procedures manual in regard to University-funded support of Ph.D. students. It is also dependent upon full-time participation in the Ph.D. program. Employee benefits, such as health insurance, are provided for Teaching Assistants.

In order to be eligible for this financial support, the student must:

1. Be enrolled in 9 semester credit hours during the first semester (Fall), 9 semester credit hours during each subsequent Spring and Fall semester, and 6 semester credit hours of Directed Research or Doctoral Research during the summer session.
2. Maintain a minimum GPA of 3.0.
3. Not hold outside employment.
4. Take all core courses during the first year, and obtain a B average or better in core courses.

5. Make satisfactory progress towards the degree including but not limited to completing:
   a) the Qualifying Exam by the end of the 5th long semester
   b) the Topic Seminar by the end of the 5th long semester
   c) the Independent Research Proposal by the end of the 7th long semester
6. Are not past their 5th year in the Ph. D. program.

Degree Requirements - Overview

The Ph.D. in Chemistry is awarded to candidates who have displayed an in-depth understanding of the subject matter and demonstrated the ability to make an original contribution to knowledge in their field of specialty. The regulations set forth below comply with the general University regulations (refer to Chapter 3, General Academic Regulations, and Chapter 6, Doctoral Degree Regulations).

The Ph.D. degree requires a minimum of 86 semester credit hours beyond the baccalaureate degree. The core curriculum comprises 12 semester credit hours of formal coursework, required teaching, research, and completion of the dissertation following advancement to candidacy. Specific course requirements are listed below. Enrollment in the Chemistry Research Colloquium (meetings of professors and students in a specific research area) and Chemistry Graduate Seminar is required each semester of enrollment and may be taken for a maximum combined total of 12 semester credit hours. A minimum of 53 semester credit hours in doctoral research, including 12 semester credit hours of Doctoral Dissertation, must be completed. Note that at least 18 hours of CHE 6991-3 Directed Research must be completed before the Qualifying Examination and that credit hours for Directed Research in excess of the minimum 18 hours stipulated can not be transferred to CHE 7921-3 Doctoral Research.

The student must have a grade point average of 3.0 or greater (on a 4.0 scale) in the core courses and elective courses combined. Each student must be a Teaching Assistant (TA) for a minimum of one academic year. Students matriculating with a M.S. degree may use

up to 30 semester credit hours toward the Ph.D. degree provided the courses are comparable to core and elective courses. Other degree requirements, including the Topic Seminar, Qualifying Examination, Independent Research Proposal and Written Dissertation are described below.

Course Requirements (2007-2009 Graduate Catalog)

- **Required (Core) Courses—12 credit hours** in Analytical Chemistry, Biochemistry, Inorganic or Organic Chemistry, and Physical Chemistry.
- **Seminars—a maximum of 12 credit hours** of chemistry seminars and colloquia.
- **Electives—9 credit hours** with specific courses chosen by the student in consultation with their supervising professor and Doctoral Studies Committee. Courses outside the department may be included upon approval by the supervising professor, MS and PhD Programs Committee and GAR.
- **Doctoral Research—53 credit hours** of doctoral research including **12 credit hours** of doctoral dissertation.

TOTAL: 86 hours

The course numbers serve as links to course descriptions in the Graduate Catalog web site. Course descriptions are listed elsewhere in this Handbook (see page 23).

A. Core curriculum (12 semester credit hours required)
CHE 5263 Advanced Analytical Chemistry
CHE 5313 Advanced Biochemistry
CHE 5453 Advanced Inorganic Chemistry **or** CHE 5643 Advanced Organic Chemistry
CHE 5843 Advanced Physical Chemistry

B. Colloquia and seminars (maximum 12 semester credit hours required)
CHE 5981 Graduate Seminar in Chemistry
CHE 7911 Chemistry Research Colloquium

C. Doctoral research (minimum 53 semester credit hours required)

CHE 6991-3 Directed Research (minimum 18 hours)

CHE 7921-3 Doctoral Research (minimum 23 hours)

CHE 7931-3 Doctoral Dissertation (minimum 12 hours)

D. Electives (minimum 9 semester credit hours required)

CHE 5833 Computational Chemistry

CHE 6603 Introduction to Polymer Chemistry

CHE 6863 NMR Spectroscopy

CHE 6883 Mass Spectrometry

CHE 7263 Recent Advances in Bioanalytical Chemistry

CHE 7403 Bioinorganic Chemistry

CHE 7433 Organometallic Chemistry

CHE 7603 Bioorganic Chemistry

CHE 7623 Methods of Organic Synthesis

CHE 7673 Advanced Topics in Medicinal Chemistry

CHE 7683 Topics in the Chemistry of Natural Products

CHE 7813 Molecular Thermodynamics

CHE 7823 Chemical Kinetics and Dynamics

CHE 7833 Quantum Chemistry

CHE 7853 Biophysical Chemistry

CHE 7903 Progress in Chemistry - Doctoral

CHE 7973 Special Problems

Choose Supervising Professor/Generate Preliminary Results

By the end of the first semester of Year 1, the student should choose a major research advisor (the Supervising Professor), who must be a member of the graduate faculty, and start to develop knowledge of the supervising professor's research. See http://www.utsa.edu/chem/faculty/faculty.cfm for descriptions of faculty research interests. See Form PhD#5 for requesting approval of the Supervising Professor.

Starting the second semester and/or first summer session of Year 1 the student should begin research in the supervising professor's laboratory. It is critical that the student develops sufficient laboratory skills to generate preliminary results prior to the Qualifying Examination. The preliminary results should be of sufficient rigor and merit to justify continued investigation, and serve as the basis for the proposed dissertation project.

Doctoral Studies Committee

The Doctoral Studies Committee should be chosen no later than the end of Fall semester of Year 2. The supervising professor chairs the Doctoral Studies Committee. Additional members of the Doctoral Studies Committee are chosen by the supervising professor in consultation with the student. The committee must consist of at least four members, including the supervising professor. If justified, one or more members of the Doctoral Studies Committee can be external to the Department of Chemistry; the GAR should be consulted in this case, because a special application must be made to the Graduate School. See form PhD#6 for requesting approval of the Doctoral Studies Committee**.**

Topic Seminar

An essential requirement of the Ph.D. program is the successful completion of a topic seminar, which is presented to the Department as part of the CHE 5981 Graduate Seminar in Chemistry, and is defended orally following the topic seminar. The topic seminar requirement should be completed during the Fall semester of Year 2. The topic seminar can form the basis for an independent research proposal (see **Independent Research Proposal** below).

The goal of the topic seminar requirement is to establish the student's ability to assimilate the information contained within a modern research area *not related to the student's dissertation research*, analyze the material critically for content and logical conclusions, and organize and present the information in a coherent fashion.

The student must obtain approval from the Doctoral Studies Committee for the topic seminar. This approval is initiated by the student's submitting a short (1 page) abstract to each member of the Doctoral Studies Committee who should, in consultation with the student, recommend approval or disapproval of the topic within one week of the abstract submission.

The student will provide a one-page abstract of the seminar to all faculty members at least one week before the seminar. The seminar (45-50 minutes) should consist of an in-depth discussion of the chosen topic, encompassing up to ten original research papers and presented as a coherent story using PowerPoint®.

Following the seminar, the student will meet with the Doctoral Studies Committee, which will recommend either approval of the topic seminar or changes in order to remedy deficiencies. Deficiencies must be remedied within two months of the original topic seminar via another oral presentation before the Doctoral Studies Committee. Grades for the Topic Seminar presentation shall be determined by the Doctoral Studies Committee and forwarded to the Departmental Seminar Coordinator.

Program of Study

The Program of Study (POS) consists of the courses taken towards the degree (See **Course Requirements**) and must be approved by the student's Supervising Professor, Doctoral Studies Committee, and MS and PhD Programs Committee. The POS must then be submitted to the Graduate School for final approval by the end of Fall semester of Year 2. See form PhD#7 below for submitting the POS.

Qualifying Examination

The Qualifying Examination is divided into written and oral portions. The Dissertation Research Proposal (DRP) constitutes the written portion, and a defense of the DRP before the Doctoral Studies Committee constitutes the oral portion. The DRP should be based on the student's current and proposed research leading to the dissertation. The purpose of the written DRP and oral defense is to assess the student's ability to coherently describe

and defend the thesis research, the unsolved problem(s) to be addressed, and its significance in the context of the general research area. The DRP should describe research that has the potential to generate novel results suitable for publications in peer-reviewed journals, presentations at scientific meetings, and/or patents. Close consultation with the Supervising Professor during preparation of the DRP is encouraged.

The DRP should follow the NSF (or NIH) grant propoal guidelines and should include the following:

10-15 numbered pages, double-spaced, with 1" margins, left-right and top-bottom, minimum of 11 pt font.
A 200-word abstract (does not count towards the page limit)
Specific Aims (with testable hypotheses)
Background and Significance
Preliminary Results
Experimental Plan
Cited References (does not count towards the page limit) in the following format:
Heo, J.; Crooks, R. M. "Microfluidic Biosensor Based on an Array of Hydrogel-Entrapped Enzymes" *Anal. Chem.* **2005**, *77*, 6843-6851.

A hard copy of the DRP should be submitted to the Doctoral Studies Committee at least two weeks before the oral defense, and the oral defense should be held no later than one month following submission of the hard copy.

The student's performance on both the oral and written portions shall be evaluated by the Doctoral Studies Committee, which shall recommend either passage or changes in order to remedy deficiencies in the oral and/or written portions. Deficiencies must be remedied within two months of the Doctoral Studies Committee's recommended changes via another oral presentation before the Doctoral Studies Committee and/or presenting hard copies of a suitably amended DRP to the Doctoral Studies Committee. Both the written and oral portions (PowerPoint slides should be numbered) of the Qualifying Examination should be taken no later than the end of Spring semester of Year 2. No more than two

attempts to pass the Qualifying Examination are permitted. See form PhD#12 for approval of passage of the Qualifying Examination.

Admission to Candidacy

All students seeking a doctoral degree at UTSA should be admitted to candidacy by no later than the Fall semester of Year 3. One of the requirements for admission to candidacy is passing the Doctoral Qualifying Examination. Students should consult the University's Doctoral Degree Regulations for the other requirements. See form PhD#13 for requesting advancement to candidacy.

Independent Research Proposal

An Indpendent Research Proposal (IRP) outside the dissertation research area must be submitted and defended by the end of Year 3. The IRP can be based on the Topic Seminar. The guidelines for writing, oral defense and evaluation of the IRP are the same as those for the Dissertation Research Proposal (see **Qualifying Examination**), except that the IRP should be prepared without close consultation with the Supervising Professor.

Written Dissertation

The student shall write a draft of the Dissertation and submit it for review to the Supervising Professor. After appropriate editing, hard copies of the draft shall be submitted to all members of the Doctoral Studies Committee for further review. Requirements for the format and style of the written dissertation are available at http://www.utsa.edu/graduate/CurrentStudent/thesisDissertationInfo.html. Scientific terminology is determined by the supervising professor in consultation with the student, but should clear, concise and consistent throughout. Following the final oral examination, the Doctoral Studies Committee makes recommendations for changes to and must approve the final version of the written dissertation.

Final Oral Examination

The final oral examination shall be held no sooner than one week and no later than one month following submission of the written draft to the Doctoral Studies Committee. The final oral examination consists of a public oral presentation (PowerPoint slides should be numbered) of the written dissertation and a closed oral defense. The defense is administered and evaluated by the student's Doctoral Studies Committee and covers the dissertation as well as the general field encompassing the dissertation.

Submission of Approved Dissertation to Dean of the Graduate School

Requirements and deadlines for submission of the written dissertation to the Graduate School are available at http://www.utsa.edu/graduate/CurrentStudent/thesisDissertationInfo.html. Three original quality, unbound hard copies of the written dissertation must be submitted to the Dean of the Graduate School. Upon request, copies are submitted to members of the Doctoral Studies Committee. Complete and submit form PhD#14.

Course Descriptions – Core

5263 Advanced Analytical Chemistry

(3-0) 3 hours credit. Prerequisite: CHE 3213 or an equivalent.

The physical and chemical principles of modern analytical chemistry with emphasis on error analysis, signals and noise, electrochemical techniques, analytical separations, and selected spectroscopic methods based on absorption and emission. (Formerly CHE 5163. Credit cannot be earned for both CHE 5263 and CHE 5163.)

5313 Advanced Biochemistry

(3-0) 3 hours credit. Prerequisite: Undergraduate biochemistry.

Advanced topics in modern biochemistry, including cell signaling, apoptosis, trafficking and processing of proteins, DNA array technology, and various aspects of bioinformatics. Ligand interactions and the thermodynamics and mechanisms underlying how these important macromolecules interact with each other. Spectroscopic determination of nucleic acid and protein structures, and reactions using techniques such as nuclear magnetic resonance spectroscopy, mass spectrometry and x-ray diffraction.

5453 Advanced Inorganic Chemistry

(3-0) 3 hours credit. Prerequisite: CHE 4463 or equivalent.

Modern theories of chemical bonding, structure of inorganic compounds, reaction mechanisms, cluster compounds, organometallic chemistry, and bioinorganic chemistry. (Formerly CHE 5133. Credit cannot be earned for both CHE 5453 and CHE 5133.)

5643 Advanced Organic Chemistry

(3-0) 3 hours credit. Prerequisites: 8 semester credit hours each of undergraduate organic chemistry and physical chemistry or graduate standing in chemistry.

An advanced study of topics in organic chemistry such as stereochemistry, conformational analysis, nonbenzenoid, aromaticity, molecular orbital theory, and organic reaction mechanisms. Applications of these concepts to the structure and

reactivity of biomolecules such as peptides and proteins, nucleic acids, and carbohydrates. (Formerly CHE 5113. Credit cannot be earned for both CHE 5643 and CHE 5113.)

5843 Advanced Physical Chemistry

(3-0) 3 hours credit. Prerequisites: CHE 3804 and CHE 4812, or equivalents.

An advanced study of group theory, and its application to molecular orbital theory, electronic/vibrational/rotational spectroscopy, and chemical reactivity.

Course Descriptions – Colloquia and seminars

5981 Graduate Seminar in Chemistry

(0-3) 1 hour credit. Prerequisite: Graduate standing in Chemistry or consent of the Graduate Advisor of Record.

Current research and literature seminars presented by faculty, visiting lecturers, and doctoral candidates. Students in the Doctoral chemistry program must register every semester while in residence, but only 8 hours will apply toward the Doctoral degree.

7911 Chemistry Research Colloquium

1 hour credit. Prerequisite: Graduate standing in Chemistry.

Discussions of current journal articles, reviews, and recent advances in specialized areas of chemistry (including current research progress of students). May be repeated for credit as topics vary. The grade report for this course is either “CR” (satisfactory participation in the colloquium) or “NC” (unsatisfactory participation in the colloquium).

Course Descriptions – Doctoral research

6991-3 Directed Research

1 to 3 hours credit. Prerequisites: Graduate standing and permission in writing (form

available) of the instructor and the student's Graduate Advisor of Record.
The directed research course may involve either a laboratory or a theoretical problem. Normally a written report is required. May be repeated for credit, but not more than 6 hours or 18 hours, regardless of discipline, will apply to the Master's degree or Doctoral degree, respectively. (Formerly CHE 5973.)

7921-3 Doctoral Research

1 to 3 hours credit. Prerequisite: Graduate standing in Chemistry.
Doctoral research and preparation. May be repeated for credit, but not more than 18 hours will apply to the Doctoral degree. Enrollment in either CHE 7921-3 or CHE 7931-3, depending on progress, is required each term in which the dissertation is in progress.

7931-3 Doctoral Dissertation

1 to 3 hours credit. Prerequisites: Permission of the Graduate Advisor of Record and dissertation director.
Preparation and writing of the Doctoral dissertation. May be repeated for credit, but not more than 12 hours will apply to the Doctoral degree. Enrollment in either CHE 7921-3 or CHE 7931-3, depending on progress, is required each term in which the dissertation is in progress.

Course Descriptions – Electives

5833 Computational Chemistry

(3-0) 3 hours credit. Prerequisites: CHE 3804 and CHE 4812, or equivalents.
The application of molecular mechanical, molecular orbital, and density functional methods to problems of molecular structure, property, reactivity, and spectroscopy. (Formerly CHE 7843. Credit cannot be earned for both CHE 5833 and CHE 7843.)

6603 Introduction to Polymer Chemistry

(3-0) 3 hours credit. Prerequisite: Consent of graduate student advisor.

Fundamental concepts of polymer chemistry, including mechanisms for synthesis, kinetics, and copolymerization; molecular weight, stereoisomerism, morphology, solubility, and thermal transitions; viso- and rubber elasticity; and the molecular basis for physical properties.

6863 NMR Spectroscopy

(3-0) 3 hours credit. Prerequisite: Consent of instructor.

A lecture course with demonstrations dealing with the basic theory and applications of one- and two-dimensional nuclear magnetic resonance spectroscopy, including the interpretation of spectra. The parameters and the pulse sequences for various types of NMR experiments and explanations of how molecular structural information can be obtained will be presented.

6883 Mass Spectrometry

(2-3) 3 hours credit. Prerequisite: Consent of instructor.

The basic principles of interpreting mass spectra and how they are produced. The effect the method of ion production has on the observed mass spectra, and the theory and operation of various types of mass spectrometers will be covered. The basic theory of ion-molecule reactions and other advanced topics will be presented.

7263 Recent Advances in Bioanalytical Chemistry

(3-0) 3 hours credit. Prerequisites: Consent of instructor and Graduate Advisor of Record.

A survey of modern analytical techniques used in studies of biological interest from both theoretical and practical perspectives.

7403 Bioinorganic Chemistry

(3-0) 3 hours credit. Prerequisite: CHE 4303 or CHE 4463, or equivalent.

Study of the functions, reaction sites, mechanisms, molecular architecture, and medicinal

aspects of metal ions in biological systems including bioorganometallic compounds. A discussion of the experimental techniques will be included.

7433 Organometallic Chemistry

(3-0) 3 hours credit. Prerequisite: CHE 4463 or equivalent.

Preparation, bonding and reactivity of organometallic compounds, both main group and transition metals.

7603 Bioorganic Chemistry

(3-0) 3 hours credit. Prerequisite: CHE 2623 or consent of instructor.

Chemical transformations of biologically important organic compounds; examination of enzyme active sites. Discussion of theories of catalysis, stereochemistry, electron-transfer, and molecular structure in the context of biological systems. (Formerly CHE 5503. Credit cannot be earned for both CHE 7603 and CHE 5503.)

7623 Methods of Organic Synthesis

(3-0) 3 hours credit. Prerequisite: CHE 2623 or consent of instructor.

A study of modern methods of organic functional group transformation, simple carbon skeleton construction, asymmetric synthesis, introduction to the synthon concept and to retrosynthetic analytical methodology for designing rational synthetic approaches to complex organic molecules of biological interest. (Formerly CHE 6123. Credit cannot be earned for both CHE 7623 and CHE 6123.)

7673 Advanced Topics in Medicinal Chemistry

(3-0) 3 hours credit. Prerequisites: Consent of instructor and Graduate Advisor of Record.

Approaches to drug design and development; a rational target-oriented approach and a combinatorial approach. Mechanisms of drug action on enzymes, receptors, and nucleic acids. Strategies for the preparation of series of analogs for the structure-activity investigations.

7683 Topics in the Chemistry of Natural Products

(3-0) 3 hours credit. Prerequisites: CHE 5643 and CHE 7623.

Selected topics in the chemistry and biochemistry of natural products and related compounds of biological and medicinal interest. Course may be repeated for credit when topics vary, but not more than 6 hours may apply to the Doctoral degree. (Formerly CHE 6183. Credit cannot be earned for both CHE 7683 and CHE 6183.)

7813 Molecular Thermodynamics

(3-0) 3 hours credit. Prerequisite: CHE 5843.

A molecular approach to the study of the physiochemical properties of gases, liquids, and solids. (Formerly CHE 5213. Credit cannot be earned for both CHE 7813 and CHE 5213.)

7823 Chemical Kinetics and Dynamics

(3-0) 3 hours credit. Prerequisite: CHE 5843.

An advanced study of topics in chemical kinetics and dynamics. (Formerly CHE 5223. Credit cannot be earned for both CHE 7823 and CHE 5223.)

7833 Quantum Chemistry

(3-0) 3 hours credit. Prerequisite: CHE 5843.

The application of quantum mechanical methods to many-body chemical systems. (Formerly CHE 5243. Credit cannot be earned for both CHE 7833 and CHE 5243.)

7853 Biophysical Chemistry

(3-0) 3 hours credit. Prerequisite: CHE 5843.

The study of the structure/function relations of proteins, nucleic acids, membranes, and other macromolecular biomolecules using spectroscopic methods. (Formerly CHE 5513. Credit cannot be earned for both CHE 7853 and CHE 5513.)

7903 Progress in Chemistry - Doctoral

(3-0) 3 hours credit. Prerequisite: Consent of instructor.

An organized course offering the opportunity for a specialized study of current aspects of chemistry not normally available as part of the regular course offerings. The course may be repeated for credit, but not more than 6 hours may be applied to the Doctoral degree.

7973 Special Problems

(3-0) 3 hours credit. Prerequisite: Consent of instructor.

An organized course offering the opportunity for specialized study not normally or not often available as part of the regular course offerings. Special Problems courses may be repeated for credit when the topics vary, but not more than 6 hours, regardless of discipline, will apply to the Doctoral degree.

Forms

In order to maintain accurate records and to track student progress, a number of forms require completion. Descriptions and examples of these forms are listed below in approximate chronological order.

PLEASE DOWNLOAD THE LATEST VERSION OF THE FOLLOWING FORMS FROM THE DEPARTMENT OF CHEMISTRY'S WEBSITE.

Admission to the Ph.D. Program

Form # **Title**

PhD#1 **Decision on application**

Applications will be evaluated by the M.S. and Ph.D. Programs Committee and a recommendation forwarded to the Graduate School. The Graduate School makes the final decision on whether to accept an applicant into the Department of Chemistry's Ph.D. program. Completed applications for the Fall semester are due at the Graduate School on February 1st of that year and decisions are usually finalized by the first week of March.

PhD#2 Application for Teaching Assistantship (TA)

After receiving and Acceptance Letter from the Department of Chemistry, a student must apply for a Teaching Assistant (TA) position. All Ph.D. candidates are required to teach for at least two semesters. TA positions are typically not available for Ph.D. students during the summer because they are expected to dedicate all of their time towards research.

PhD#3 **Transfer of Credit**

A *student may petition to have previous applicable course work credited towards his/her Ph.D. Program of Study. The student must initiate this process by writing a short letter to the GAR listing the non-UTSA*

course(s) being requested for substitution of UTSA course(s) along with copies of the non-UTSA course description(s) (from the University's graduate catalog), a course syllabus (of the type typically distributed by the instructing Professor at the first class meeting), and an official academic transcript reporting the non-UTSA course grades. The GAR will seek approval for the credit transfer from the M.S. and Ph.D. Programs Committee, then to the Dean of the Graduate School through the Associate Dean for Graduate Studies in the College of Sciences. Upon their approvals, a memorandum, see A.Ph.D#3 below, will be prepared {the key point here is that you need to consult your GAR}.

The Ph.D. Program

PhD#4 Registration Information Form

This form enables the GAR to monitor prospective registrations for classes and enables the Scheduling Committee to schedule teaching assignments so as to avoid conflicts with classes.

PhD#5 Request to Approve Doctoral Research Supervisor

This form needs to be completed by the end of your first semester of registration. Your research advisor (supervising professor) must be a member of the Tenured/Tenure Track Faculty; see listing at the end of this Handbook.

PhD#6 Request to Approve Doctoral Studies Committee

This form is used to request the three members of your Doctoral Studies Committee (in addition to your supervising professor). These members should be drawn from the Tenured/Tenure Track Faculty; see listing at the end of this Handbook.

PhD#7 **Program of Study**

The Program of Study form lists student's intended coursework. It will be developed under the direction of the research advisor in consultation with the GAR. The updated Program of Study must be submitted before the Qualifying Examination.

PhD#8 **Ph.D. Progress Report**

Each year, during the Summer Semester, a Progress Report needs to be submitted to the Graduate School via the GAR.

PhD#9 **Application for Continued Funding**

Continued RA/TA support and exemption from Tuition Fees is contingent upon satisfactory progress through the Ph.D. program. A formal annual request for continued financial support is required.

PhD#10 **Approval of Topic Seminar**

PhD students are required to present a Topic Seminar describing current research outside their area of research. The Topic Seminar should normally be completed by the end of the second Spring semester following admission.

PhD#11 **Directed Research**

This form must be completed and approved by members of the Department – your doctoral research advisor, the GAR and Chairman – in order to allow you to conduct research towards your Ph.D. Thesis.

PhD#12 **Qualifying Examination**

In order to be admitted to candidacy, a student must have chosen a doctoral research advisor and a Doctoral Studies Committee, be in good

academic standing, have submitted a Program of Study, and have passed the written and oral Qualifying Examinations.

PhD#13 Application for Candidacy for the Doctoral Degree

After passing the Qualifying Examination, formal application must be made to Candidacy for the Doctoral Degree.

PhD#14 Dissertation Proposal Approval Form

The Ph.D. Dissertation must be formally approved by the College of Science/Graduate School.

PhD#15 Certification of Completion of Dissertation Requirements for Doctoral Degree

This form is completed by the GAR upon completion of all requirements for the Ph.D. degree.

PhD#1 Decision on your application (example)

MEMORANDUM March 1st, 2006

TO: Dr. D. Flanagan, Dean
Graduate School

THROUGH: Dr. ( ) Associate Dean for Graduate Studies
College of Sciences

THROUGH: Dr. Waldemar Gorski
Interim Chair, Department of Chemistry

FROM: Graduate Advisor of Record, Department of Chemistry

SUBJECT: RE: Application for Admission to the Doctoral Program in Fall 2006

Program: Chemistry Catalog: 2005-2007

Recommendation of Admission:

The Department of Chemistry's MS and PhD Programs Committee met on (February 1st, 2006), to consider the application of the following person for the Doctoral Program in Chemistry:

Name of applicant:

Banner ID:

Recommendation: ___√___ Accept Starting term: Fall 2006

_____ Do not accept

_____ Insufficient information on file to consider application

Comments: _____

Initial Graduate Advisor:

Financial Award (full stipend with tuition/fees waiver)
___√___ Awarded Starting date: Fall 2006
_____ Do not Award

PhD#2 **Application for Teaching Assistantship (TA)**

The University of Texas at San Antonio
Department of Chemistry

Application for Teaching Assistantship

Name _____
(Last) (First) (Middle)

Social Security Number _____

Place of Birth _____

Date Available _____ Request: Half-Time Appointment □
Quarter-Time Appointment □

Available for 9 month appointment □yes □no

Rate following labs in order of your top two preferences for teaching:
□ General Chemistry I Lab
□ General Chemistry II Lab
□ Organic Chemistry I Lab
□ Organic Chemistry II Lab
□ Instrumental Analysis

Home Address _____ Residence Telephone _____
City _____ State _____Zip _____

Are you a citizen of the United States? _____Yes _____No If not, do you intend to apply?
If not a US citizen, TOEFL score_____

Are you related by blood or marriage to any member of the Board of Regents, or faculty or staff of The University of Texas System?
□yes □no If yes, give name and relationship: _____
Have you ever been employed by The University of Texas System? □yes □no When?_____
Where? _____ In what capacity? _____

ACADEMIC BACKGROUND

Overall GPA_____ Chemistry GPA_____
GRE Scores: _____Verbal _____Quantitative _____Analytical

Grades for specific classes: General Chem I ____General Chem II____ Org Chem I____ Org Chem II____

Degrees Earned	Date	Institute Conferring	Major	Minor

RESEARCH/TEACHING EXPERIENCE

Name of Institution	Type of Institution	Position or Rank	No. of Years

OTHER TYPES OF EMPLOYMENT IN ASCENDING ORDER:

Place	Type of Business	Position	No. of Years

PUBLICATIONS: (List title of books, pamphlets, articles, research projects, and publication dates).

PRESENTATIONS AND ABSTRACTS: (Where presented and when)

MEMBERSHIPS:

Professional: _____

Non-Professional: _____

REFERENCES SUPPLYING LETTERS OF RECOMMENDATION – APPLICANT IS RESPONSIBLE FOR INSURING LETTERS ARE SENT: (unless indicated, UT San Antonio will assume that contact can be made to the references listed).

NAME	ADDRESS	TELEPHONE	POSITION

NOTE: UT San Antonio is an equal opportunity employer.

In order for the application to be considered, the student must be admitted to one of the Masters Programs in the College of Sciences as a degree-seeking student. The student must have two or more letters of recommendation submitted.

I certify that the statements made by me in this application are true, complete, and correct to the best of my knowledge and belief and are made in good faith. I understand that any false statements made herein will void this application and any actions based on it. I understand that any offer of employment tendered me is contingent upon my agreement to abide by the Rules and Regulations of the Board of Regents of The University of Texas System.

Date _____ Signature _____

PhD#3 **Transfer of Credit** *{Consult the Graduate Advisor of Record }*

The University of Texas at San Antonio

Office of the Registrar

RECOMMENDATION FOR COURSES TAKEN AT ANOTHER INSTITUTION TO BE COUNTED IN UTSA PhD DEGREE PROGRAM

College of Science

Student's Name Student ID Number

Degree PhD Major Chemistry Concentration

Courses to be transferred from other components of The University of Texas System:

Number	Title	Hours	Institution	Grade	Date

Courses to be transferred from institutions outside The University of Texas System:

Number	Title	Hours	Institution	Grade	Date

Counting of courses listed above to a graduate degree program for this student ☐ is acceptable.

☐ is not acceptable.

_____ _____

Office of the Registrar Date

Application of the starred (*) courses listed above to the Program of Study for this student is hereby approved.

_____ _____

Program Advisor Graduate Advisor of Record

_____ _____

Date Date

Approved:_____ _____

Dean Date

PhD#4 Registration Information Form

REGISTRATION INFORMATION FORM

Department of Chemistry
PhD Program in Chemistry

NAME _____Student ID# _____

I have registered for or intend to register for the following graduate courses for the Fall Semester 2006. I understand that this form is NOT a registration form, but is solely an information form for the Department.

Completion of this form does not obligate you to take the courses listed, but please try to be as accurate and complete as possible. This form is to be returned to the Chemistry Graduate Advisor of Record ASAP. Your cooperation will assist the Department in scheduling the courses to meet your needs, as well as scheduling your TA assignments, if applicable.

Course type and number	Check the appropriate column	
	Have registered	Intend to register
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Comments:

SIGNATURE _____ DATE _____

PhD#5 Request to Approve Doctoral Supervising Professor

Memorandum

Date: _____

To: **Graduate Advisor of Record**

From: _____
Student

_____
Proposed Supervising Professor

RE: Request to Approve Doctoral Supervising Professor

I wish to inform the MS and PhD Programs Committee that I have chosen _____ for my Supervising Professor with his/her consent.

Signature _____
Ph.D. Student

Approved by:
Graduate Advisor of Record, Department of Chemistry

Approved by:
Dr W Gorski, Interim Chairman, Department of Chemistry

PhD#6 Request to Approve Members of the Doctoral Studies Committee

Memorandum

Date: _____

To: **Graduate Advisor of Record**

_____
Supervising Professor

_____
Ph.D. Student

RE: Proposed members of Doctoral Studies Committee

We are requesting approval for the following members to be assigned to

Doctoral Studies Committee.

Chairman/Member:
Name and signature

Member:
Name and signature

Member:
Name and signature

Member:
Name and signature

____ Approved ____ Denied

Approved by:
Graduate Advisor of Record

PhD#7 Program of Study Form

THE UNIVERSITY OF TEXAS AT SAN ANTONIO
Interim Program of Study for the Doctor of Philosophy Degree in Chemistry

Student Name _____ Student ID _____
Program of Study for Doctor of Philosophy Degree in Chemistry
Catalog 2005 - 2007 Major Chemistry Concentration _____
The following courses are required for the degree indicated below:

Discipline and Number	Course Title	Sem. Hour Credit	Grade	When and Where Completed
CORE COURSES (17 semester hours required)				
CHE 5263	Advanced Analytical Chemistry	3		
CHE 5313	Advanced Biochemistry	3		
CHE 5453*	Advanced Inorganic Chemistry	3		
CHE 5643*	Advanced Organic Chemistry	3		
CHE 5843	Advanced Physical Chemistry	3		
CHE 5912	Introduction to Chemical Research (CR/NC)	2		
CHE 5923	Teaching and Research Practice and Ethics (CR/NC)	3		
* required to take only one of these option				
COLLOQUIA/SEMINARS (12 semester hours required)				
CHE 5981	Graduate Seminar in Chemistry (max. 8 credit hours)			
CHE 7911	Chemistry Research Colloquium			
DOCTORAL RESEARCH (48 semester hours required)				
CHE 6991-3	Directed Research (minimum 18 hours)			
CHE 7921-3	Doctoral Research (minimum 18 hours)			
CHE 7931-3	Doctoral Dissertation (minimum 12 hours)			
ELECTIVES (minimum 9 semester hours)				
CHE 6603	Introduction to Polymer Chemistry	3		
CHE 6863	NMR Spectroscopy	3		
CHE 6883	Mass Spectrometry	3		
CHE 7263	Recent Advances in Bioanalytical Chemistry	3		
CHE 7403	Bioinorganic Chemistry	3		
CHE 7433	Organometallic Chemistry	3		
CHE 7603	Bioorganic Chemistry	3		
CHE 7623	Methods of Organic Synthesis	3		
CHE 7673	Advanced Topics in Medicinal Chemistry	3		
CHE 7683	Topics in the Chemistry of Natural Products	3		
CHE 7813	Molecular Thermodynamics	3		
CHE 7823	Chemical Kinetics and Dynamics	3		
CHE 7833	Quantum Chemistry	3		
CHE 7843	Computational Chemistry	3		
CHE 7853	Biophysical Chemistry	3		
CHE 7903	Progress in Chemistry – Doctoral	3		
CHE 7973	Special Problems	3		

n.b. Minimum of 86 semester credit hours of courses with a grade point average of 3.0 or above, on a 4.0 scale, in Core and Elective Courses.
**Indicate course used towards MS degree (maximum of 30 hours, comparable to core and elective courses).

Upon completion of the above requirements, in addition to meeting the University-wide requirements for all Doctoral degrees, the above named student has satisfied all requirements for Doctor of Philopsophy Degree in Chemistry

Supervising Professor's Signature _____ Date _____

Advisor of Record's Signature _____ Date _____

Signature _____ Date _____
Doctoral Program Committee Chairman

Signature _____ Date _____
Dean of Graduate Studies
NOTES:
Doctoral Studies Committee : Chair: _____ Member: _____

Member: _____ Member: _____

Member: _____ Outside Member: _____

THE ORIGINAL COPY OF THIS FOR MUST BE FILED WITH THE REGISTRAR
---------- DO NOT WRITE BELOW THIS LINE ----------

Applied for degree	_____	Time Limit (8yr)	_____	Hours of A _____ x 4	_____
Advanced to Candidacy	_____	Comprehensive Exam	_____	B _____ x 3	_____
Admission Cleared	_____	Dissertation Filed	_____	C _____ x 2	_____
				Total _____: GPA (3.0 min) _____	

PhD#8 Ph.D. Progress Report

ANNUAL DOCTORAL STUDENT PROGRESS REPORT for (AY) _____

Program _____ Date of evaluation _____

Student _____ Banner number _____

Part A. If student is pre Qualifying Examination complete this section.

Progress in meeting course requirements is:
_____ satisfactory _____ slower than desirable _____ unsatisfactory
Quality of course work is:
_____ satisfactory _____ poorer than desirable _____ unsatisfactory
Commitment to completing the degree program is judged to be:
_____ satisfactory _____ less than desirable _____ unsatisfactory
With respect to general progress toward the doctorate, this student's evaluation is:
_____ satisfactory _____ lower than desirable _____ unsatisfactory
Comments:

Part B. If student is post Qualifying Examination complete this section.

Dissertation research project plans are:
_____ satisfactory _____ not completely appropriate _____ unsatisfactory
Quality of research work to date is:
_____ satisfactory _____ poorer than desired _____ unsatisfactory
Work on the research is proceeding:
_____ at a timely rate _____ too slowly _____ at an unsatisfactory rate
Commitment to completing the research is judged to be:
_____ satisfactory _____ less than desirable _____ unsatisfactory
With respect to timely completion of all degree requirements, this student's evaluation is:
_____ satisfactory _____lower than desirable _____ unsatrisfactory
Comments:

Evaluation by: Program Advisor (for Part A) _____
Doctoral Studies Committee Chair (for Part B)
_____
Agreement with evaluation by:
Graduate Advisor of Record _____
Committee member(s) _____

PhD#9 Application for Continued Funding

Application for Doctoral Student Funding

Name:_____

Banner ID:_____

Ph.D. Program:_____

Number of years you have been enrolled: _____

Number of hours you have completed: _____

Number of years you have received funding:_____

Current doctoral GPA: _____

Name of Graduate Advisor/Research Supervisor:_____

Type of funding for which you are applying (check all types for which you are applying):

_____ Research Assistant

_____ Teaching Assistant

_____ Fellowship/Scholarship

Signature:_____

PhD#10 Approval of Topic Seminar

Memorandum

Date: _____

To: **Graduate Advisor of Record**

_____
Ph.D. Student

RE: Topic Seminar

We wish to inform you that we have agreed to _____ choice of Topic Seminar.

The title of the Topic Seminar is

Member:
Name and signature

Member:
Name and signature

Member:
Name and signature

PhD#11 Directed Research

THE UNIVERSITY OF TEXAS AT SAN ANTONIO
COLLEGE OF SCIENCES
Department of Chemistry

DIRECTED RESEARCH

(CIRCLE ONE)
CHE 6991 CHE 6992 CHE 6993

Directed Research is an important part of the graduate program. The Department of Chemistry in the College of Sciences has a requirement that a minimum of 18 hours credit hours in Directed Research, regardless of discipline, be counted towards your Ph.D. degree. In Fall 2006, students should enroll in one or more of CHE 6991-6993; the final number refers to the number of credit hours. The student should have a solid background in order to be able to function well in Directed Research which may involve laboratory research or a theoretical problem. Prerequisites include graduate standing and permission in writing (this form) from the instructor, the Graduate Advisor of Record, and the Department Chair in which the course is offered.

Name_____ Banner ID_____

Degree Sought Ph.D. Major Chemistry
Status (circle one): Graduate-no conditions Graduate-conditional Special Graduate

Post-baccalaureate Grade Point Average at UTSA:_____

Courses taken previously which form a basis for this Directed Research:

	Discipline & Number	**Course Title**
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____

7. _____ _____

Post-baccalaureate hours of Independent Study and/or Directed Research enrolled previously:

Semester in which you wish to enroll in Directed Research: Summer 2006

Name of instructor supervising this Directed Research: _____

Description of Topic to be studied:

Description of work to be required of the student and the basis upon which credit and a grade will be assigned:

Will you be required to use any of the computer resources (mainframe, microcomputer, *etc*.) of the University or College as part of this Directed Research? Attach Computer Utilization from. (If you have any questions about this, consult your instructor).

Yes No

Student	Date
Instructor	Date
Graduate Advisor of Record	Date
Department Chair	Date

*****NOTE: If you are seeking approval of a Directed Research course <u>outside</u> the department of your major, the Directed Research form must be signed by both:**

The Department Chair of your major AND
The Department Chair of the discipline in which the Directed Research course is offered.

PhD#12 Qualifying Examination

THE UNIVERSITY OF TEXAS AT SAN ANTONIO
COMPLETION OF THE QUALIFYING EXAM
For the degree of

DOCTOR OF	

Name of Student _____ Graduate Program _____

UTSA Academic Record

Entered Program (Initial term): _____ 20 ____

Total no. semester hours completed: _____ Cumulative GPA: _____

All required courses completed: □ Yes □ No

Qualifying Examination

Examinations Passed:

Written_____ Oral_____
Date Date

Signatures of Qualifying Examinations Committee:

_____ Chairman
PRINTED NAME / SIGNATURE

_____
PRINTED NAME / SIGNATURE

_____
PRINTED NAME / SIGNATURE

_____
PRINTED NAME / SIGNATURE

Supervising Professor

_____
PRINTED NAME / SIGNATURE

Graduate Advisor of Record

PRINTED NAME / SIGNATURE

Chairman, MS and PhD Programs Committee

_____

PRINTED NAME / SIGNATURE

Dean of College

PRINTED NAME / SIGNATURE

Dean, Graduate School

PRINTED NAME / SIGNATURE

PhD#13 Application for Candidacy for the Doctoral Degree

THE UNIVERSITY OF TEXAS AT SAN ANTONIO

APPLICATION FOR CANDIDACY FOR THE DOCTORAL DEGREE

Student's Name: Student ID:

Anticipated Graduation Date:	

Degree Sought: Major Area:

Title of Dissertation:	

Student's Signature: _____ Date: _____

_____ Level of English proficiency is satisfactory.

_____ Scholarship to date is satisfactory.

_____ Program of Study is satisfactory.

_____ Qualifying Examination administered on

Supervising Professor for Dissertation _____
PRINTED NAME / SIGNATURE

Doctoral Studies Committee Members: _____
PRINTED NAME / SIGNATURE

_____
PRINTED NAME / SIGNATURE

_____
PRINTED NAME / SIGNATURE

_____
PRINTED NAME / SIGNATURE

Outside Examiner: _____
PRINTED NAME / SIGNATURE

Supervising Professor: _____
PRINTED NAME / SIGNATURE

********************Doctoral Program Committee Recommendations********************

Based upon this student's performance to date and the attached Program of Study:

□ We recommend that the student be advanced to Candidacy.

□ We do not recommend advancement to Candidacy at this time.

Chair, Doctoral Program Committee _____
PRINTED NAME / SIGNATURE

Department Chair _____
PRINTED NAME / SIGNATURE

Dean of College _____

PRINTED NAME / SIGNATURE

******************************Graduate School********************************

Official Action Taken: □ Advanced to Candidacy _____

Date

□ Denied Candidacy _____

Date

Signature:		Date:	
Dean, Graduate School			

PhD#14 Dissertation Proposal Approval Form

THE UNIVERSITY OF TEXAS AT SAN ANTONIO

DISSERTATION PROPOSAL APPROVAL FORM

Student's Name: _____ Student ID: _____

Department: College:

Title of Dissertation Proposal:	
Doctoral Studies Committee Members:	

Chair _____
PRINTED NAME / SIGNATURE

Member _____
PRINTED NAME / SIGNATURE

Member _____
PRINTED NAME / SIGNATURE

Member _____
PRINTED NAME / SIGNATURE

Outside Member _____
PRINTED NAME / SIGNATURE

**********************Doctoral Program Committee Action*********************

Doctoral Program Committee Review Date: _____

Doctoral Program Committee Chair Signature: _____

Department Chair Signature: _____

Dean of College: _____

******************************Graduate School***********************************

Official Action Taken: □ Approve Dissertation Proposal

□ Disapprove Dissertation Proposal

Signature:		Date:	
Dean, Graduate School			

Attachments:

(1) Dissertation Proposal
(2) Approval of Doctoral Doctoral Studies Committee Form

PhD#15 Certification of Completion of Dissertation Requirements for Doctoral Degree

THE UNIVERSITY OF TEXAS AT SAN ANTONIO

Certification of Completion of Dissertation Requirements for Doctoral Degree

To: The Director of Registrar

This is to certify that the student named below has completed all requirements for the dissertation associated with the degree indicated and that the dissertation has been filed with this office.

Student's Name:			
	(Last)	(First)	(Middle)
Student Identification Number:			
Dissertation Title (as it is to be listed on the student's official records):			
Semester hours of credit to be awarded for dissertation			
Grade to be awarded for dissertation credit			
Date dissertation approved and filed with Graduate School			
Degree to which dissertation applies (Ph.D., Ed.D; area and concentration):			

Signatures of Doctoral Studies Committee Members:

Chair _____
PRINTED NAME / SIGNATURE

Member _____
PRINTED NAME / SIGNATURE

Member _____
PRINTED NAME / SIGNATURE

Member _____
PRINTED NAME / SIGNATURE

Outside Member _____
PRINTED NAME / SIGNATURE

Approval of Department Chair:

Department Chair _____
PRINTED NAME / SIGNATURE

Approval of College:

Dean of College _____
PRINTED NAME / SIGNATURE

Approval of The Graduate School:

Dean, Graduate School _____
PRINTED NAME / SIGNATURE

**********************For Registrar's Office Use Only*********************

a) Credit and grade entered on student's record _____

b) Dissertation title entered on student's record _____
c) Graduation check updated _____
d) Student notified _____
e) Notes: _____