



Graduate Studies in Chemistry  
University of Utah

2009 - 2010

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## INTRODUCTION

The graduate curriculum of the Chemistry Department for students entering during the 2009-2010 academic year is presented in the following pages and summarized in the flow chart on the next page, and in the timeline on the page after that.

The general requirements for all students studying for the Ph.D. degree are:

- take a series of courses in the first year,
- present a departmental seminar,
- pass a qualifying exam,
- write and defend a research proposal,
- write and defend a dissertation based on an in-depth research problem.

Each requirement is presented in detail in later sections. The requirements for the M.S. degree are set forth in section 13.

In addition to reading the information presented here, all graduate students are encouraged to examine the regulations concerning graduate study at the University of Utah Graduate School website (<http://www.gradschool.utah.edu/catalog/index.php>).

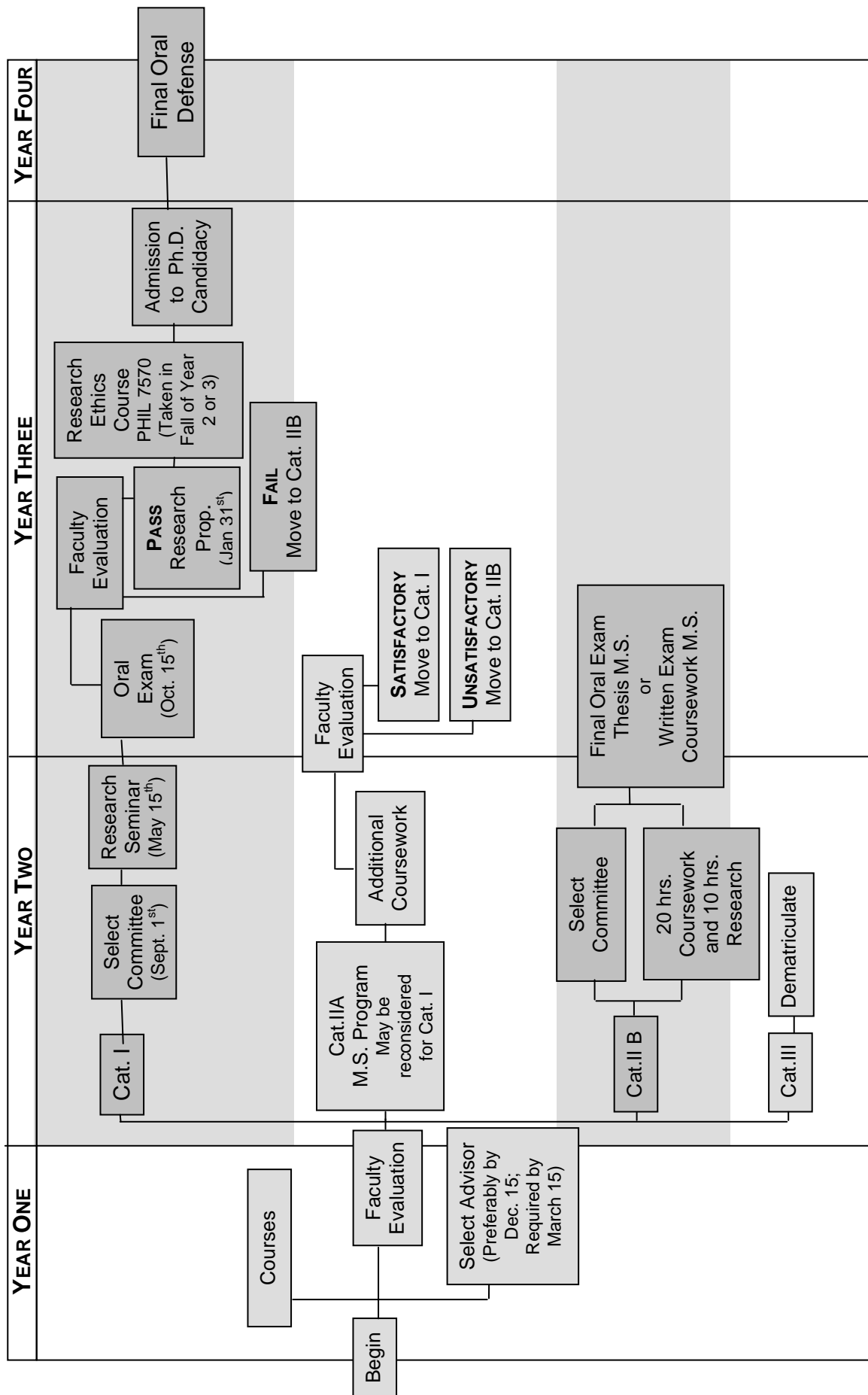
## DEPARTMENTAL AND DEGREE REQUIREMENTS

### 1) REGISTRATION AND TUITION BENEFIT REQUIREMENTS

- A. Students who are present on campus and making use of University facilities (lab or office space, libraries, faculty time) must be enrolled at all times for a minimum of 3 credit hours in chemistry courses. The appropriate course for those engaged only in research is "Thesis Research", Chemistry 7970; or for those only writing a thesis, "Faculty Consultation", Chemistry 7980. (PLEASE NOTE: For those with special certification needs, *e.g.*, to prevent the beginning of undergraduate loan payments, it may be necessary to register for more than 3 hours per semester.)
- B. Tuition Benefits will be provided for graduate students in good standing according to departmental rules. The number of semesters for which a student will receive tuition benefits is determined by the student's previous degree and the graduate degree currently being pursued, as described at the website <http://www.gradschool.utah.edu/tbp/guidelines.php>:
1. Students in the Ph.D. program who entered with a B.S. or B.A. degree will receive five years (10 semesters) of tuition benefit support.
  2. Students in the Ph.D. program who also received a Master's degree at the University of Utah are limited to five years of tuition benefit support (2 years for the Master's + 3 additional years for the Ph.D.).
  3. Students entering the Ph.D. program with a Master's degree from another university are eligible for four years (8 semesters) of tuition benefit support.

Students in the M.S. program are limited to 2 years (4 semesters) of tuition benefits. Students who have been supported as teaching assistants for four or more semesters may qualify for additional semesters of tuition benefits.

# GRADUATE PROGRAM IN CHEMISTRY



## Timeline for Ph.D. Student Requirements:

<b>Requirement</b>	<b>Due date for students entering in Fall semester, year X</b>	<b>Due date for students entering in Spring semester, year X</b>
Completion or waiver of 8 half-semester courses	End of Spring semester, year X + 1	End of Fall semester, year X
Advancement to Category I	Following satisfactory completion of coursework	Following satisfactory completion of coursework
Interview with 4 potential research advisors, and selection of an advisor	Preferably by Dec. 15, year X; Definitely by March 15, year X+1	Preferably by July 15, year X; Definitely by October 15, year X
Supervisory Committee form is turned in	September 1, year X+1	January 31, year X+1
Completion of course in research ethics (PHIL 7570) "Case Studies in Research Ethics" (Before completion of 84 credit hours!)	Must be taken before admission to Ph.D. candidacy. <b>Note:</b> This course is only offered during the Fall semester. Should be taken in year X+1 or X+2.	Must be taken before admission to Ph.D. candidacy. <b>Note:</b> This course is only offered during the Fall semester. Should be taken in year X+1 or X+2.
30 minute seminar	May 15, year X + 2	December 15, year X+1
Pre-Oral summary	At least 1 week before pre-oral	At least 1 week before pre-oral
Pre-Oral exam	October 15, year X + 2	March 1, year X + 2
Research Proposal synopses	2 weeks before pre-oral	2 weeks before pre-oral
Submission of a written research proposal	January 31 of year X + 3 (or within 3-1/2 months of the date of passing the pre-oral, if it is not passed by October 15, year X + 2)	June 1 of year X + 2 (or within 3 months of the date of passing the pre-oral, if it is not passed by March 1, year X + 2)
Oral presentation of research proposal	Within 3 weeks of submission of the written document	Within 3 weeks of submission of the written document
<b>Admission to Ph.D. Candidacy</b>	When all of the requirements listed above are met.	When all of the requirements listed above are met.
Submission of written thesis to Ph.D. committee	At least 14 days before final Ph.D. oral defense	At least 14 days before final Ph.D. oral defense
Final oral defense	At least 14 days after submission of the thesis	At least 14 days after submission of the thesis

**NOTE:** Failure to meet these deadlines leads to the revocation of a student's "Good Standing" status, until the pertinent requirements are met. If "Good Standing" status is not maintained, the department assumes no obligation to provide financial support. In addition, the tuition waiver will be revoked along with the revocation of "Good Standing" status.

B. Tuition Benefit (continued):

Students must be fully matriculated, receive a TA or RA stipend, maintain at least a 3.00 GPA, and be registered for the appropriate number of credit hours of graduate coursework in order to receive a waiver for the academic year (see below). **All students receiving a tuition waiver must sign the tuition benefit agreement list each semester that a waiver is received.** This list will be available in the Graduate Education Office (HEB 4404) at the beginning of each semester. Please see the Graduate School Tuition Benefit Guidelines (*Appendix A* of this handbook or <http://www.gradschool.utah.edu/tbp/guidelines.php>) for a detailed list of criteria for receiving tuition waiver benefits. Students should register for the number of credit hours described in the table below:

Semester	Students Entering in Fall, Year X	Students Entering in Spring, Year X
Spring, Year X		12 credit hours
Summer, Year X		3 credit hours
Fall, Year X	12 credit hours	11 credit hours if RA 12 credit hours if TA
Spring, Year X+1	12 credit hours	11 credit hours
Summer, Year X+1	3 credit hours	3 credit hours
Fall, Year X+1	11 credit hours	11 credit hours
Spring, Year X+2	11 credit hours	11 credit hours
Summer, Year X+2	3 credit hours	3 credit hours
Fall, Year X+2	11 credit hours	11 credit hours
Spring, Year X+3	11 credit hours	11 credit hours
<i>etc.</i>		
After expiration of tuition benefits	3 credit hours	3 credit hours

- C. Students must apply for Utah State Residency following completion of 40 credit hours of graduate study in order to continue to receive tuition waivers (see section 13).
- D. Students who do not meet the "good standing" requirement of the Department and the University's requirements as specified above, or who fail to register and sign the tuition benefit list, will be required to pay their tuition bill. Also, students who leave the department in the middle of a semester may be retroactively required to pay tuition for the semester in which they leave, if the stipend they have accrued during the semester falls below the minimum required for receipt of a tuition waiver.

Of particular relevance to incoming graduate students is the policy of the University that maintenance of a 3.00 GPA is required for graduate studies. Thus, a student who fails to maintain a 3.00 GPA in their first semester of classes is no longer in good standing, and is not guaranteed financial support or a tuition benefit for the second semester. After two semesters, a student with a GPA below 3.00 will not qualify for guaranteed financial support and will certainly not receive a tuition benefit.

## 2) HEALTH INSURANCE AND PARENTAL LEAVE

For the protection of its students, the Chemistry Department requires all graduate students to have health insurance. The University of Utah Graduate School has worked out a plan of coverage with GM Southwest Corporation to provide coverage for up to \$200,000 of expenses. See the website [www.gmsouthwest.com](http://www.gmsouthwest.com), and click on policy information, then select Utah and University of Utah to obtain a descriptive brochure of this program for the 2009-2010 academic year. The department (or the research advisor, through research grants) will pay for \$200,000 worth of coverage for all graduate students. If the student wishes to have health insurance for a spouse and/or children, the student can supplement the premiums paid by the department to purchase the additional coverage.

Students are not obligated to accept coverage through GM Southwest. If a student prefers a different insurance policy, the department will reimburse the student for the cost of insurance, up to the cost of the GM Southwest policy.

At the beginning of every semester, all graduate students are required to sign a statement that they are either accepting the GM Southwest coverage, or arranging coverage through a different company. The department uses the resulting list to make sure that all students desiring coverage through GM Southwest are indeed covered. If a student fails to sign this statement at the beginning of each semester, the department accepts no responsibility should a claim need to be filed.

The Department of Chemistry provides 12 weeks of parental leave to graduate students in good standing in the Ph.D. track, provided that they have not yet defended their Ph.D. dissertation. Ordinarily, this benefit will be interpreted as a maternity leave policy and the 12 week period will include the birth date of the child. Under unusual circumstances, men who are the primary caregiver within the family may qualify and may petition the chair for such consideration. Students who qualify will be paid at their normal rate during the 12-week leave.

### 3) COURSE REQUIREMENTS

Before admission to the Ph.D. or M.S. degree track, graduate students are required to complete a series of graduate courses. This first-year sequence is designed to give students a strong, fundamental background for advanced graduate work and to assist the faculty in evaluating new graduate students. The courses permit exposure to material in a student's area of interest while maintaining necessary breadth in other basic areas.

Up to four courses (eight credit hours) may be waived on the basis of satisfactory prior completion of comparable courses elsewhere. Occasionally credit may be established by examination. In either case, the student should discuss this option with the professor in charge of the course in question, who will then make a recommendation to the Graduate Education Committee.

Until the course requirement is met and a research advisor is selected, students must register for three courses per half-semester term. At least eight courses must be completed (or waived) the first academic year. Only the Graduate Education Committee has the authority to make exceptions to this rule. A course may be dropped or changed to Audit only by permission of the Graduate Education Committee.

#### Course Selection.

Upon beginning the program, each student selects one of the five disciplines of chemistry (analytical, biological, inorganic, organic, or physical chemistry) that he/she wishes to emphasize in coursework during the first year. Courses selected in the area of emphasis are referred to below as divisional courses.

Students must complete eight half-semester courses in the first year with the following distribution:

- Four divisional courses.
- Two breadth courses from other divisions of chemistry.
- Two elective courses.

Table I (below) lists the divisional courses. The student must select four half-semester courses from the area of chemistry that he/she wishes to emphasize. The two breadth courses may be selected from the remaining areas of chemistry. The two elective courses may be selected from any area of chemistry. Students may substitute courses from other science or engineering departments (*e.g.*, physics, computer science, biochemistry) for either the breadth or elective courses upon approval from his/her advisor and the Chair of the Graduate Education Committee. The student should petition in writing to take courses from other departments, explaining how the course will benefit his/her research program. Only those students who have selected a research advisor may elect to take courses from outside of the Chemistry Department.

During the student's first semester in residence and until he/she has selected a research advisor, course selections must be approved, in writing (Form 1, Appendix B), by a member of the Graduate Education Committee prior to registration. Once a student has chosen a research advisor, the student makes course selections in consultation with

his/her advisor.

Financial support will not be provided for students who fail to have their course selection approved as delineated above.

### **First Year Progress Review:**

The Graduate Education Committee will review the progress of each student every semester. After two semesters in the program (excluding summer semesters), the performance of the student in the core courses will be evaluated by the Graduate Education Committee, and a recommendation will be made to the full faculty. Courses in which the grade is below a "B" will not be included in the evaluation, and student will ordinarily be recommended for Category I if the set of 8 core courses have been completed with grades of "B" or better. If the eight core courses have not yet been completed, with grades of "B" or better, a recommendation will be made to the full faculty that the student be placed in Category IIa, IIb, or III. The final decision as to how the student will be categorized rests with the full faculty.

Category I -- Accepted into the Ph.D. degree track.

Category II -- Accepted into the M.S. degree track.

- a. (Category IIa) Certain courses must be satisfactorily completed in order to be reconsidered for acceptance into Category I.
- b. (Category IIb) Accepted for the M.S. degree track only.

Category III -- Dematriculated. Not acceptable as a candidate for a graduate degree in the Department of Chemistry.

Upon placing a student in Category IIa, the Chemistry Department faculty will normally recommend courses that must be completed satisfactorily or other action that must be taken in order to be reconsidered for acceptance into the Ph.D. degree track.

A student placed in Category IIb may petition to be reconsidered for the Ph.D. degree track after the completion of a thesis M.S. degree. The decision of the faculty as to whether an M.S. student shall be permitted to pursue a Ph.D. degree will then be based both upon the extent to which the student has demonstrated ability in research, and the degree to which the academic course requirements for the Ph.D. have been mastered. If the student wishes to be reconsidered for the Ph.D. track, the M.S. thesis defense will also be attended by 2 additional faculty members, who are chosen to supplement the three M.S. committee members in such a way that the proper composition for a Ph.D. committee is achieved. These additional members will participate in a private comprehensive examination after the public portion of the thesis defense. On the basis of the comprehensive exam, the committee will make a recommendation to the full faculty regarding the student's continuation toward the Ph.D. degree. If the faculty votes to place the student into Category I, this comprehensive exam will serve as the qualifying exam (preliminary oral exam). Successful defense of the M.S. thesis will not necessarily constitute passing the preliminary oral examination for the Ph.D. degree, since a higher level of performance is expected for the preliminary oral exam.

**TABLE I. DIVISIONAL COURSES.** *Courses offered in the current year are found at <http://www.utah.edu/students/catalog.html>*

ANALYTICAL CHEMISTRY

CHEM 7700	Analytical and Chemical Measurements I	CHEM 6740	Bioanalytical Chemistry
CHEM 7710	Analytical and Chemical Measurements II	CHEM 7750	Information Processing
CHEM 7720	Separations	CHEM 7760	Instrumentation Electronics
CHEM 7730	Electrochemistry	CHEM 7770	Optical Spectroscopy
		CHEM 7780	Surface Chemistry

BIOLOGICAL CHEMISTRY

BLCHM 6410	Protein and Nucleic Acid Biochemistry	CHEM 7470	Nucleic Acid Chemistry
CHEM 7150	Bioinorganic Chemistry	CHEM 7480	Physical Principles of Biomolecular Systems
CHEM 7450	Biophysical Chemistry	CHEM 7490	Metabolism
CHEM 7460	Protein Chemistry		

INORGANIC CHEMISTRY

CHEM 7100	Principles of Inorganic Chemistry	CHEM 7150	Bioinorganic Chemistry
CHEM 7110	Inorganic Mechanisms	CHEM 7160	Organometallic Chemistry I
CHEM 7120	Physical Inorganic Chemistry	CHEM 7170	Homogeneous Catalysis
CHEM 7130	Solid State Chemistry		

ORGANIC CHEMISTRY

CHEM 7200	Contemporary Organic Synthesis I	CHEM 7250	Physical Organic II
CHEM 7210	Contemporary Organic Synthesis II	CHEM 7270	Organic Spectroscopy I
CHEM 7240	Physical Organic I	CHEM 7280	Organic Spectroscopy II

PHYSICAL CHEMISTRY

CHEM 7000	Introduction to Quantum Mechanics I	CHEM 7070	Chemical Kinetics
CHEM 7010	Introduction to Quantum Mechanics II	CHEM 7080	Chemical Dynamics
CHEM 7020	Introduction to Spectroscopy I	CHEM 7500	Angular Momentum Theory
CHEM 7030	Introduction to Spectroscopy II	CHEM 7520	Computational Chemistry Laboratory
CHEM 7040	Statistical Thermodynamics		
CHEM 7050	Classical Thermodynamics	CHEM 7530	Molecular Simulations
CHEM 7060	Statistical Mechanics		

Note: The introductory course, CHEM 6510 Advanced Biological Chemistry, is not acceptable as a core course for students in the biological division. It may be used as an elective or breadth course for students in other divisions, provided they have not previously taken a biochemistry course. Similarly, CHEM 6810 (Nanoscience), may be used with permission of the advisor as an elective, but does not satisfy the core course requirement for any of the divisions.

It is the experience of the physical division faculty that in addition to the 8 core courses, most physical chemistry students need to take two additional half-semester courses in physical chemistry to be well-prepared as physical chemists. Therefore, we strongly encourage students who identify themselves as physical chemists to take a total of 10 graduate courses in their first year, with the two additional courses selected from the physical offerings. If you have selected an advisor, you should seek his/her advice when selecting your courses; otherwise, your selection should be approved by the physical member of the Graduate Education Committee.

#### 4) **OTHER COURSEWORK**

- A. First-year students are required to attend faculty research presentations, given during the Fall semester, designed to aid in the selection of an advisor for dissertation research.
- B. All students are expected to attend their divisional seminar during every academic year in residence.
- C. Prior to being admitted to Ph.D. candidacy, all graduate students must enroll in and complete the course PHIL 7570, "Case Studies in Research Ethics." This is a half-semester course that meets once a week during the fall semester, for 1-1/2 hours, in which case histories of ethical issues in research are presented and debated. It is recommended that graduate students postpone taking this course until their second year in the program. In order to be covered by the tuition benefit program, this course must be completed before the student has expended 84 credit hours of tuition benefits.
- D. Occasionally, students may need to learn the material that is taught in an undergraduate course (such as a Computational Science programming course). Students in this position are encouraged to ask the instructor of the appropriate course to take a directed reading class from them, at the 5000-level, for one credit hour and then sit in on and complete the assignments and exams for the undergraduate course. The student will then obtain a grade in the directed reading course, which qualifies for a tuition benefit. To make this a legitimate graduate course, the advisor (not the instructor of the course) should give the student a project that is to be completed during the semester. The advisor then reports the grade to the instructor of the directed reading course, who then submits the final grade.

#### 5) **SEMINARS AND COLLOQUIA**

##### **A. Seminars**

The department offers seminar series in the areas of Analytical/Physical, Biological, Inorganic, and Organic Chemistry. Speakers are students, faculty, and outside visitors. Students are expected to attend all seminars in their own areas and are encouraged to attend others as well.

##### **B. Colloquia**

The Department also offers a Colloquium series by invited speakers on topics of general chemical interest. These provide an important view of what is currently going on in chemistry and an opportunity to hear distinguished speakers from all over the country and abroad. All students are expected to attend. These Colloquia are preceded by a brief social period in which refreshments are served.

## 6) SELECTION OF A RESEARCH ADVISOR

A research advisor should be selected in conjunction with the faculty research presentations (section 4A) and personal discussions with the faculty members whose research is of interest. Recent faculty publications and research proposals, as well as senior graduate students and post-doctoral associates can also provide useful information. Students should realize that the choice of a research advisor will greatly influence the next three to five years of their lives and, in all likelihood, the rest of their careers. This is an important decision that both the student and potential advisor must make with careful consideration. The faculty believes that such care includes detailed discussions with at least four faculty members. Even if the student has already decided on a research director, such interviews are an all-too-rare opportunity to learn about other research and to meet other faculty members one-on-one. Such contacts are especially useful when the student later chooses their supervisory committee (see section 7).

The following steps are required to formalize the selection of a research advisor: (1) obtain the appropriate form (Form 2, Appendix B) from the Academic Program Coordinator in the Graduate Office; (2) secure the signatures of at least four faculty with whom you have spoken; (3) rank order your top three choices for an advisor; and (4) return the form to the Academic Program Coordinator for approval by the Director of Graduate Studies.

Students are **strongly encouraged** to complete the process of interviewing faculty and selecting a research advisor before the end of fall semester. Failure to select a research advisor by March 15 of the 1<sup>st</sup> year will result in the loss of good academic standing and the loss of financial support (including tuition waiver benefit). It is a good idea to select a research advisor as early as possible. If a student waits too long to interview and select a research advisor, it gives the impression of a lack of interest. Students who have not found a research advisor by the middle of their second semester in residence may be unable to do so, thereby ending their hope of obtaining a graduate degree at the University of Utah.

## 7) SUPERVISORY COMMITTEE

A student placed in Category I should proceed to arrange immediately for a Supervisory Committee. This should be done in consultation with the research advisor. The Ph.D. Supervisory Committee consists of the research advisor, two faculty members from the student's division, one faculty member not in the student's division, and one faculty member from outside the Department. For the purposes of assigning committees, the faculty affiliations are determined according to the table given on the next page.

The student should fill out the Supervisory Committee selection form (form 3, Appendix B), listing up to five in-division faculty and three out-of-division faculty, in order of preference, who may serve on the committee. This form should be turned in to the GEC no later than September 1 at the beginning of the 2<sup>nd</sup> year. The GEC will make the final selection of committee members. Under unusual circumstances, an exception allowing more than one outside Department member on the committee may be made. Such a request must be approved by the research advisor and submitted in writing to the GEC.

For the purpose of assigning faculty to supervisory committees, faculty members are considered as belonging to the following divisions:

Analytical	Biological	Inorganic	Organic	Physical
Conboy	Burrows	Ernst	Keck	Anderson
Harris	Flynn	Miller	Looper	Armentrout
Porter	Grissom	Richmond	Louie	Bartl
Shumaker-Parry	Poulter		Rainier	Eyring
White	Woycechowsky		Sigman	Molinero
			Stang	Morse
			Zharov	Simons
				Truong
				Voth
				Wight

### 8) SEMINAR

Each student will present a 30-minute seminar by May 15<sup>th</sup> of the 2<sup>nd</sup> year. The seminar will be either on the subject of the student's research, or on a topic in the chemical literature, according to the preference of the research advisor. Faculty and students in the department, including the student's supervising committee, attend the seminar. The student is responsible for scheduling the seminar with the division seminar chairperson at least one semester in advance. The student should register for 2 credit hours of their divisional seminar during the semester in which they present. The student's performance at the seminar presentation will be evaluated and graded by faculty members attending the seminar. A grade of B or better is required to fulfill the seminar requirement for the Ph.D. degree.

### 9) QUALIFYING EXAMINATIONS FOR PH.D. CANDIDACY

A qualifying examination is required by the Graduate School of all students prior to admission to Ph.D. candidacy. This examination consists of two parts, a written examination and an oral examination.

#### A. Written Examination

The written examination requirement is satisfied by admission to Category I.

#### B. Oral Examination (Pre-Oral)

The Pre-Oral Qualifying Exam is devoted to an examination of the graduate student's progress in research, together with an examination of the student's general knowledge of chemistry, particularly in his/her major field.

*i. Scheduling of the Pre-Oral Exam*

The Preliminary Oral Examination (Pre-oral) requirement must be fulfilled by Oct. 15<sup>th</sup> of the 3<sup>rd</sup> year for students entering in the Fall semester.

No later than July 31<sup>st</sup>, the student will contact all members of the Supervisory Committee to schedule a specific date for the examination, and inform the Academic Program Coordinator in the Graduate Education Office. The student should also ask one of the chemistry faculty on the Supervisory Committee to serve as temporary chair for the Pre-Oral Exam, as the research advisor is not present during the Exam. The Academic Program Coordinator should be informed of the Pre-Oral chair's name one week before the Pre-Oral in order to prepare the appropriate forms, i.e. Program of Study and Pre-Oral evaluation forms (forms 4 and 5, Appendix B).

Students who fail to schedule and take this exam on time will no longer be considered to be in good standing by the Department. Specifically, they will be ineligible for financial support by the Department, including tuition waivers or any kind of full or part-time teaching appointment.

*ii. Preparation for the Pre-Oral Exam*

The student must prepare a written summary (a limit of 10 double-spaced typewritten pages of text, excluding references) in a style suitable for publication in a journal relevant to the student's major field of study. This summary should include (a) an introduction and outline of the main goals of the proposed research, (b) a description of the progress to date, (c) a discussion and interpretation of the work to date, (d) a description of research plans, telling how the student will complete the Ph.D., and (e) a list of references appropriate for a thorough review of the relevant scientific literature. The Committee chair must approve any modifications in this format. This summary must be delivered to each member of the Supervisory Committee at least one week prior to the scheduled date of the Pre-Oral Exam. A copy of the summary should be given to the Academic Program Coordinator in the Graduate Office for inclusion in the student's permanent record.

*iii. Format of the Pre-Oral Exam*

The student should prepare an oral presentation of the material described in the written summary. The talk should span approximately 30 minutes, and should encompass in a clear, concise, and logical fashion: (a) an introduction to the proposed research with necessary background, (b) a description of research progress to date, and (c) a proposed plan of future research. Research progress is broadly defined, and includes preliminary results, experiments attempted (successful or failed), instruments constructed, etc. The student is expected to demonstrate an ability to discuss her/his research in a comprehensive and knowledgeable manner, with a sound understanding of the scientific methods and equipment that are used in carrying out this research.

*iv. Evaluation of the Pre-Oral Exam*

The Supervisory Committee's task is to determine whether the candidate (1) is making adequate progress on the chosen research problem, (2) is sufficiently acquainted with the relevant literature, (3) is capable of exercising critical scientific judgment, and (4) is likely to produce an acceptable Ph.D. dissertation.

The Committee, after offering whatever comments, suggestions, and criticisms are deemed appropriate, will take one of the following actions:

a) Pass

The student's progress and aptitude have been determined to be sufficient; the Committee recommends that this student be admitted to Ph.D. candidacy.

b) Conditional Pass

The student's progress and aptitude are largely satisfactory. However, the Committee has found that certain deficiencies must first be addressed prior to admission to Ph.D. candidacy. The Committee recommends that the student do further work. Such work may include (a) additional coursework to remedy a weak background, or (b) a rewrite of the manuscript portion of the Pre-Oral examination. The student is not required to retake the oral exam.

c) Not Pass

The student's progress and/or aptitude is/are fair but not satisfactory for admission to Ph.D. candidacy. The Committee recommends the student do further work and repeat the exam a final time. The procedures will be the same as the first meeting. The action taken at this second (and final) meeting will be to (i) pass the student with respect to his/her research progress and aptitude, or to (ii) fail the student, thereby terminating the student's eligibility for the doctoral program. This second exam must be completed prior to a date determined by the examination committee, and will ordinarily be within 9 months of the first.

d) Fail

The student has not demonstrated satisfactory research progress or research aptitude and cannot be recommended for admission to Ph.D. candidacy.

**C. Overall Evaluation of the Qualifying Examination**

The entire faculty will evaluate the results of the qualifying examination with respect to admission to Ph.D. candidacy. A grade of "Pass" on both exams normally results in a recommendation for admission to candidacy, but the opinion of a student's research advisor on his/her apparent ability to do Ph.D. research is also taken into consideration. Students earning "Fail" on either exam are not eligible for Ph.D. candidacy, and will be reclassified in Category IIb. In addition, students are not eligible for placement in Ph.D. candidacy until the Research Ethics course (PHIL 7570) has been taken (credit/noncredit), the seminar has been successfully presented, and the Research Proposal has been successfully defended before the committee.

## 10) RESEARCH PROPOSAL

For a student to develop into a PhD-level scientist, it is essential to learn how to formulate ideas for research and present them in a concise and convincingly written document. At least one week before the pre-oral, the candidate will give all members of the thesis committee a brief (one typewritten page) synopsis for each of three different ideas that could be developed into a full research proposal. Research proposal topics must not be closely related to the student's current research project, or to a topic that is under investigation in the research advisor's laboratory. The full committee (including the research advisor) will meet immediately before the pre-oral to select one of the three topics for further development. The selection will be discussed with the candidate, and then the pre-oral will proceed. The student should then complete the full proposal and deliver it to the committee members prior to Jan. 31<sup>st</sup> of the third year (or within 3.5 months following passing of the pre-oral exam, if the exam is not passed prior to Oct. 15<sup>th</sup>). The candidate will then make a tightly organized 30 minute oral presentation of the proposal to the full supervisory committee within three weeks of turning in the proposal. At the discretion of the committee, the presentation may be extended to 60 minutes, but this is the exception rather than the rule. The candidate must obtain the appropriate form (form 7, Appendix B) from the Academic Program Coordinator in the Graduate Office before beginning work on the proposal.

Proposals can be crafted according to one of the formats that are commonly used by chemistry faculty:

(1) The NSF proposal format described at:

[http://www.nsf.gov/pubs/2002/nsf022/nsf0202\\_2.html#IIB1](http://www.nsf.gov/pubs/2002/nsf022/nsf0202_2.html#IIB1)

(2) The NIH postdoctoral fellowship format described at:

<http://grants1.nih.gov/grants/forms.htm>

Prior to preparing the proposal, students are encouraged to consult the Department of Chemistry *Guidelines for the Research Proposal* handbook for more detailed instructions, and to examine examples of successful proposals prepared by previous students.

## 11) PH.D. FINAL ORAL EXAMINATION

This examination will cover the thesis research of the candidate. The first part of the exam is open to the public and is normally a seminar presentation of about one hour in length, after which the student's Ph.D. Supervisory Committee will carry out further questioning.

A pass/fail vote by the Committee will follow. The examination version of the thesis must be in the hands of the Ph.D. Supervisory Committee at least 14 days before the examination. Appropriate forms (Appendix A) for this exam must be obtained from the Academic Program Coordinator in the Graduate Office.

## 12) TIMELY COMPLETION OF THE PH.D. DEGREE

It is expected that each student should be able to complete all of the requirements for the Ph.D. degree in about four to five years. In order to encourage the timely completion of the degree, students who have not defended their dissertations within 4.5 years are required to meet with their Ph.D. Supervisory Committees at least once each year. The first of these meetings must take place no later than the beginning of the 5<sup>th</sup> year in residence. This meeting may be brief and informal. The purpose will be to bring the Committee up to date on the research progress made and to formulate a timetable for completing the remaining goals, including an estimated date for the thesis defense. This plan must be approved by the Committee and then forwarded to the Academic Program Coordinator in the Graduate Office for inclusion in the student's permanent file.

## 13) MASTER OF SCIENCE DEGREE

The student should consult the University of Utah Graduate School website (<http://www.gradschool.utah.edu/index.php>) for details. For either the coursework or thesis M.S. degrees, Category I or II placement on the basis of course performance is required. An M.S. Supervisory Committee composed of three Chemistry faculty is then chosen. The Graduate Education Committee must approve the committee.

A minimum of 30 semester credit hours is required for the M.S. Degree (thesis and coursework) in Chemistry. At least 12 hours of these will be required graduate chemistry courses, satisfactory completion of which will fulfill the Graduate School Comprehensive Examination requirement.

### A. Coursework Master's Degree

For the coursework M.S. Degree, at least 10 hours of research credits (CHEM 6900) and 20 credit hours of coursework in graduate level chemistry courses or graduate courses in a closely allied field of study, subject to approval by the student's supervisory committee, are required.

The final examination for the coursework M.S. is a written exam in the student's area of emphasis that will be administered by the faculty. Alternatively, and upon mutual agreement between the student and faculty advisor, students may elect to write a report on his/her research, and present the report to his/her committee for approval.

### B. Thesis Master's Degree

For a thesis M.S. Degree, at least 10 hours of research credits (CHEM 6900) and 20 credit hours of coursework in graduate level chemistry courses or graduate courses in a closely allied field of study, subject to approval by the student's supervisory committee, are required.

The final oral examination will cover the thesis research of the candidate. The first part of the exam is open to the public and is normally a brief presentation of the thesis research after which the student's M.S. Supervisory Committee will carry out further questioning. A pass/fail vote by the Committee will follow. The examination version of the thesis

must be in the hands of the M.S. Supervisory Committee at least 14 days before the examination. Appropriate forms (see Appendix A) for this exam must be obtained from the Academic Program Coordinator in the Graduate Education Office.

## **ADDITIONAL DEPARTMENTAL & UNIVERSITY REQUIREMENTS**

### **14) BECOMING A LEGAL RESIDENT OF UTAH**

In order to continue to qualify for the tuition benefit program, all domestic and non-resident alien graduate students who are not Utah residents are required to submit evidence to the Graduate School that they have made a good faith effort to apply for and obtain Utah residency after their second year of graduate study. However, if residency is denied, their tuition benefit status will not be affected. International students are not affected by this requirement because they cannot qualify for resident status.

A residency application will be sent to all domestic and non-resident alien students at the end of the second year in residence by the Academic Program Coordinator in the Graduate Office. There are no non-resident fees required of those who attend the University during summer semester. In addition, students registered for only CHEM 7970 (Thesis Research) are charged at the in-state tuition rate. Students are encouraged to review the residency requirements found in Appendix A of this handbook.

### **15) OUTSIDE EMPLOYMENT POLICY FOR GRADUATE STUDENTS**

It is the policy of the faculty of the Department of Chemistry to encourage graduate students to devote their full attention to the completion of the Ph.D. (or M.S.) in chemistry.

By accepting a TA/RA stipend or fellowship, a student agrees not to work at a second job, either within or outside of the Department, without prior consent from his/her advisor and the Chair of the Graduate Education Committee. Students who pursue additional employment without notifying their advisor and the Chair of the Graduate Education Committee are not considered to be in good standing, which may result in immediate discontinuation of their TA/RA stipend or fellowship.

## 16) GUARANTEE OF FINANCIAL SUPPORT FOR STUDENTS IN GOOD ACADEMIC STANDING

Under current Department of Chemistry guidelines, any graduate student admitted under regular status who is in good academic standing is guaranteed financial support for two years (4 semesters of tuition benefit) as an M.S. candidate (thesis M.S. only), and for 5 years (10 semesters of tuition benefit) as a Ph.D. candidate (see section 1). This policy was implemented to support students who were making normal progress towards a degree, and to assure that the Department of Chemistry will support students even if (for example) their advisor's research support is unexpectedly cut off. Please be aware that the only departmental source of financial support to graduate students is in the form of Teaching Assistant positions. Thus the guarantee of financial support presupposes that a student can function satisfactorily as a Teaching Assistant, and has had an acceptable level of achievement as a T.A. A student is ineligible for a T.A. and guarantee of financial support if that student is not qualified to teach. Reasons for ineligibility include but are not limited to: poor evaluations from students or faculty supervisor, failure to obey safety regulations, or inability to communicate effectively in English.

## 17) TERMINATION OF A GRADUATE STUDENT/FACULTY ADVISOR RESEARCH RELATIONSHIP

The following guidelines have been jointly approved by the Faculty and the Graduate Student Advisory Committee of the Department of Chemistry for the rare occasions when it becomes necessary to terminate a graduate student/faculty advisor research relationship.

Either the graduate student or the faculty advisor may terminate a student/advisor research relationship because of dissatisfaction. It is important that both parties respect the needs of the other. The following guidelines are designed to help accomplish this.

If a faculty advisor is dissatisfied with the research effort of a student, the advisor should make every effort at an early stage of the dissatisfaction to communicate to the student the concerns he/she may have about the level of quality of research performance. If the deficiencies persist, the faculty advisor should identify to the student in writing the unsatisfactory aspects of the student's research performance, and allow the student a reasonable time (at least 30 days) to correct the deficiencies. A copy of this letter should be sent to the chair of the Graduate Education Committee. If the deficiencies are corrected in the probationary period, the faculty advisor should notify the student in writing that he/she is no longer on probation (copy of the letter to be sent to the chair of the Graduate Education Committee).

If the deficiencies persist at the end of the formal probationary period, it is the prerogative of the research advisor to terminate the student/advisor research relationship. The procedure should be:

- a. To notify the student in writing, giving reasons for the dismissal, indicating a formal termination date at least 15 days after the date of the letter. A copy of the letter should be sent to the chair of the Graduate Education Committee.

b. If the student is being paid as an R.A., the student should be kept on the payroll for 15 days after the date of the notification letter to allow time to obtain a new research director, unless a new research director puts the student on a payroll before the end of the 15 days.

c. If the student is being paid as a T.A., the department will continue the current T.A. support until the end of the termination semester, contingent, of course, on the T.A. duties being carried out conscientiously.

It is the student's obligation to turn over all data and notebooks arranged in a manner that will allow the research director to continue the work. If these materials are not turned over by the termination date, any pay from a new research director or the department may be held in escrow until the above obligation is met.

A student who wants to leave a research group should give the faculty advisor 30 days written notice outlining the reasons for leaving the group. During the 30 days, the experimental work should be brought to a point where it could be easily passed on to a new person. All notebooks and data should be returned to the research advisor before the student is put on another faculty member's payroll. Students should be aware that it is impossible to make T.A. appointments in mid-semester and should plan accordingly.

A student who changes research groups is obligated to complete a change of advisor form available from the Academic Program Coordinator in the Graduate Office. At this time, the student should also reconstitute the student's supervisory committee if necessary, e.g. if they have switched divisions. If the student has already completed the pre-oral examination, the student must prepare a brief (2-5 page) summary outlining the new thesis project within five months of joining the new research group. Based on this preliminary information, the committee may decide to call for a brief oral presentation of the new project by the student. An oral presentation would be considered normal for a student that switches divisions or makes a substantial change in their research direction. Failure to obtain written approval from the supervisory committee within six months of switching advisors will result in loss of good standing for the student.

## **18) DEMATRICULATION**

In the unusual case that a student fails to make satisfactory progress toward the timely completion of a graduate degree, the faculty may consider dematriculation of the student from the program.

## 19) CHECK-OUT PROCEDURES

Upon completion of study here and before leaving the University of Utah campus, the student is responsible for turning in all keys issued in their name. As stated on the key request (signed at the time the keys were issued): "I will return this key when my need or employment terminates." The keys must be returned to Leatha Allred in the Main Office (2020 HEB), not to the research advisor. The student should also obtain an "Exit Interview" form from the Academic Program Coordinator in the Graduate Office to provide information such as forwarding address and future affiliation.

## 20) UNIVERSITY OF UTAH HONOR CODE

Academic dishonesty in all its forms is proscribed including, but without being limited to, cheating on tests, plagiarism, and collusion.

1. Cheating on tests includes but is not limited to:
  - a. copying from another student's test paper;
  - b. using materials during a test not authorized by the person giving the test;
  - c. collaborating with any other person during a test without authority;
  - d. knowingly obtaining, using, buying, selling, transporting, or soliciting in whole or in part the contents of an unadministered test;
  - e. bribing any other person to obtain an unadministered test or information about an unadministered test;
  - f. substituting for another student or permitting any other person to substitute for oneself, to take a test;
  - g. altering a returned examination for subsequent re-evaluation and regrading;
  - h. failure to return an examination that the instructor has required to be returned;
  - i. removal of an examination from the classroom or office that the instructor has required not to be removed.
  
2. "Plagiarism" means the appropriation of any other person's work and the unacknowledged incorporation of that work in one's own work offered for credit. "Plagiarism" also includes the republication of your own work without citing the location where your work was originally published.
  
3. "Collusion" means the unauthorized collaboration with any other person in preparing work offered for credit.

### National Academy of Sciences Definition of Misconduct in Science

Misconduct in science is defined as fabrication, falsification, or plagiarism, in proposing, performing, or reporting research. Misconduct in science does not include errors in the recording, selection, or analysis of data; differences in opinions involving the interpretation of data; or misconduct unrelated to the research process.

## 21) CHEMICAL PHYSICS PH.D. PROGRAM

### 1. GENERAL PROGRAM

The chemical physics program is an interdisciplinary graduate curriculum permitting maximum flexibility to well-qualified graduate students seeking advanced training for research in areas of common interest to physics and chemistry. This program of study leading exclusively to the doctoral degree is administered by the executive committee for chemical physics of the Departments of Chemistry and Physics. Course work requirements are tailored to meet the need and interests of students on an individual basis in consultation with the student's Supervisory Committee.

### 2. FACULTY

Several faculty members of the Departments of Chemistry and Physics are available to supervise thesis research in this program. As of September 2008 those who have indicated availability include, in Physics, Professors Boehme, DeTar, Gerton, Harris, Lupton, Saam, Symko, and Vardeny; and in Chemistry, Professors Anderson, Armentrout, Bartl, Flynn, Grant, Molinero, Morse, Shumaker-Parry, Truong, Voth, and Wight.

### 3. PROCEDURE

Students desiring to pursue a degree in Chemical Physics may be admitted to the program as soon as they have met the preliminary requirements for admission to the doctoral program in one of the cooperating departments. In Physics, this point is reached when a student has passed the Common Examination; in Chemistry, the corresponding point is placement of the student by vote of the Departmental faculty in "Category I".

Once students have met the requirements for entry into the program, they complete their admission by submitting the form "Request for Supervisory Committee", giving the names of faculty members whom they have consulted for research topics in Chemical Physics, the name of their selected thesis advisor and probable thesis research project, and certain other information. This form should be turned in to the Chairman of the Chemical Physics Program who will thereupon appoint a thesis supervisory committee. This committee will then meet with the student and work out with him or her a suitable program of study and an acceptable selection of topics for the Chemical Physics Ph.D. Qualifying Examination. This examination will be administered by the student's thesis committee after the student has become prepared through completion of suitable courses and independent study. The results of the Chemical Physics Qualifying Examination and the program of study approved by the supervisory committee will be forwarded to the Chairman of the Chemical Physics Program for final approval and certification to the Graduate School.

It will also be the responsibility of the thesis advisory committee to monitor the progress of the student and recommend to the Chairman of the Chemical Physics Program any actions intended to encourage appropriate progression toward a degree or, where necessary, to terminate the student's participation in the program.

#### 4. THESIS

When the student's thesis research has progressed to the point of knowing its general scope and conclusions he/she should obtain from the Supervisory Committee members their approval of the thesis content and results, and should then complete a rough draft and give the committee members an adequate opportunity to make suggestions for incorporation into the final version. A final oral examination is then scheduled, which will consist of a public presentation of the student's thesis followed by a private meeting with the student's thesis committee on the thesis work and on any additional topics that the committee has indicated will be included in the examination.

#### 5. ADMINISTRATION

For the 2009-2010 academic year, the co-Chairs of the Chemical Physics Program are

Professor Carleton DeTar, Department of Physics

Office: 212 INSCC, telephone 581-7537, e-mail: [detar@physics.utah.edu](mailto:detar@physics.utah.edu)

Professor Michael Morse, Department of Chemistry

Office: 3428 HEB, telephone 581-8319, e-mail: [morse@chem.utah.edu](mailto:morse@chem.utah.edu)

Additional information concerning the program and any needed forms may be obtained from either of the administrators listed above.

## APPENDIX A: TUITION BENEFIT PROGRAM GUIDELINES

### Categories of Supported Graduate Students

The four eligible classifications qualifying a student for TBP participation are:

- a. Graduate Teaching Assistant (TA), (PAN job code 9416, Exempt): A graduate student with instructional responsibilities as instructor of record, assistant to the instructor of record or tutor. Duties may include lecturing, holding discussion or problem sessions, conducting laboratory sections, conducting studio or performance work, online instruction, grading, tutoring and holding office hours. International students must be cleared through the [International Teaching Assistant Program](#) before being placed in jobs coded 9416.
- b. Graduate Research Assistant (RA), (PAN job code 9314, Exempt): A graduate student assigned directly to an externally funded research grant (5000 fund only) and doing research for that project.
- c. Graduate Assistant (GA), (PAN job code 9330, Exempt; 9331, Hourly): A graduate student assigned work related to his/her degree program and not covered in the previous two categories. A GA must be funded by his/her department and not supported by external 5000 funding. Exceptions, if a student wishes to work as a GA outside his/her home department, prior approval must be granted by the Dean of the Graduate School.
- d. Graduate Fellow (GF): A graduate student on a fellowship receiving a monthly stipend and whose tuition is not paid by the award. No employer-employee relationship exists in a fellowship. The University administers the award and a service expectation may or may not accompany it. The five-digit account 66900 must be entered in the chartfield on the stipend form. TBP has right of first reversal if other sources of tuition funding are available.

These four specific job codes satisfy current federal policies and regulations for graduate students working toward post-baccalaureate degrees at the University of Utah. Graduate students should be classified as exempt whenever feasible and not hourly. Students on stipends should receive prorated monthly payments. Non-matriculated students, part-time students, and students on probationary status are ineligible for the TBP.

PeopleSoft fund codes 1000, 2000, 5000 and 6000 satisfying TBP payroll eligibility. Note: Graduate RAs (9314) must be paid from research grants with a 5000 fund and 8-digit project number. To be eligible for TBP participation, no other job code than 9314 (RA) can be used on a PAN with a 5000 fund.

### Registration Requirements

Students participating in the TBP must be full-time, matriculated graduate students in good standing, cumulative GPA 3.0 (Law School, 2.0). TBP full-time student status means registration of at least 9 credit hours throughout the semester. This provision does not affect full-time definitions or requirements currently employed for the purpose of loan repayment, student insurance, or other reporting requirements. TBP covers 9 graduate credit hours to a maximum of 12 credit hours, except for RAs whose tuition benefit is a minimum of 9 and a maximum of 11 credit hours in Fall and Spring semesters and 3 credit hours in Summer semester. For RAs who have exceeded 84 accumulated credit hours resident (in-state) tuition only is included in the TBP. This condition will be implemented

in the semester that cumulative registration exceeds 84 credit hours as a University of Utah graduate student. Undergraduate, contract and/or audited courses count toward the required minimum 9 credit hours but do not qualify for a tuition benefit. A student registered for fewer than 9 credit hours may make up the difference by registering for 6970, 6980, 7970, 7980, or other appropriate graduate credit. Students may register for a maximum 16 semester hours but are responsible for tuition for hours exceeding 12 credits. Students adding and/or dropping courses after the semester's published add/drop deadlines are responsible for any and all charges incurred. If registration falls below 9 credit hours at any time during the semester, a student becomes ineligible for TBP participation and will be billed the full tuition for that semester.

### Financial Support Requirements for a Tuition Benefit

All students receiving a tuition benefit must meet minimum financial support requirements paid through the University of Utah for each semester that a benefit is received. Minimum support levels for the 2009-2010 academic year are:

1. \$5,750 per semester: 100% tuition benefit
2. \$4,313 per semester: 75% tuition benefit
3. \$2,875 per semester: 50% tuition benefit

No tuition benefit is granted to students receiving less than \$2,750 for the semester. Required minimum support level is annually indexed to general salary increases to prevent gradual erosion of established graduate student salaries and stipends.

### Service Requirements

Graduate students receiving a tuition benefit are expected to fulfill the responsibilities appropriate to their specific assignment. No student is required to work more than 20 hours a week (0.50 FTE) in order to receive a tuition benefit. Faculty may expect up to 20 hours of work a week (0.50 FTE) from students receiving a 100% tuition benefit, 15 hours a week (0.375 FTE) from students receiving a 75% tuition benefit, and 10 hours a week (0.25 FTE) from students receiving a 50% tuition benefit. Students working one or more on-campus jobs with a combined FTE greater than a 0.74 FTE are ineligible to participate in the Graduate Tuition Benefit Program.

**NOTE:** In order to participate in the TBP, student information, including combined salaries, stipends, and FTEs (from university departments) using job codes (9330, 9331, 9314, and 9416), must be entered on the TBP Web page by the "home" department (department in which the student is pursuing a graduate degree). These data must be entered on the Web before the 'state registration census' is taken, e.g., 15th day of classes.

### Residency and Meritorious Status

As approved by the University of Utah President and according to Utah law and the Board of Regents' policy, out-of-state TBP students are exempt from paying non-resident tuition. Their graduate tuition benefit is at the in-state rate for the appropriate TBP level (100%, 75%, or 50%). Tuition and fees not covered by the TBP are the student's responsibility. Out-of-state, non-international graduate students receiving a tuition benefit must apply for Utah residency upon fulfilling sixty (60) semester credit hours at a regionally accredited

Utah institution of higher education. Comprehensive and aggressive action should be taken by departments to ensure that U.S. citizens apply for Utah residency once 40 graduate credit hours are reached. Credit hours for graduate-level courses 6000 and above shall be multiplied by 1.5 in calculating the required 60 semester credit hours. A student's ability to establish residency will not affect receipt of a tuition benefit. (For complete Code on Utah residency, revised 2002, go to:

<http://www.sa.utah.edu/admiss/appdownload/Resident.pdf>).

Graduate meritorious status is established by:

- a. Admission to the University of Utah as a matriculated graduate student;
- b. Selection on the basis of merit, determined by written policy in each department, as a supported graduate student receiving a salary or stipend from the University of Utah under the provisions and subject to the minimum levels of support provided in the Graduate Council guidelines;
- c. Recommendation of the department chair;
- d. A candidate for a graduate degree maintaining a 3.0 GPA or higher (except where otherwise approved, such as a 2.0 GPA in the Law School). GPAs are verified at the end of each academic year. A grade below C- is not accepted for credit toward a graduate degree; some departments further restrict C grades.

### Restrictions

A graduate tuition benefit is available only to graduate students compensated through the University of Utah. The TBP covers general graduate tuition and mandatory fees. Differential tuition charged by various university graduate and professional programs is the responsibility of the graduate student, department and/or college. Students may participate in the TBP for a limited number of semesters, which need not be sequential. Time limits for participation in the TBP are as follows:

1. Students in a Master's program are limited to two years (4 semesters) of tuition benefit support.
2. Students in a doctoral program who entered with a Bachelor's degree are limited to five years (10 semesters) of tuition benefit support.
3. Students in a doctoral program who also received a Master's degree at the University of Utah are limited to five years of tuition benefit support (2 years for a Master's + 3 additional years for a doctorate).
4. Students entering a doctoral program with a Master's degree from another university are eligible for four years (8 semesters) of tuition benefit support.

Doctoral students who fall under categories 2 and 3 above and who have served a minimum of four semesters as full-time TAs (0.50 FTE or 20 hrs/ week), may receive an additional year (2 semesters) of tuition benefit support beyond the limits described above. In order to receive this time extension, students must be nominated by the department chair and/or the director of graduate studies in a letter to the dean of the Graduate School. These restrictions do not limit the number of years or semesters a program, department, or college may choose to support a student in addition to the TBP. Established time limits for completion of graduate programs still apply.

The student and department are responsible for maintaining an accurate count of the semesters of tuition benefit support a student has received. A student who receives more terms of tuition benefit than he or she is eligible may be retroactively billed for the tuition of the ineligible semester(s).

Tuition benefit support is not generally available for summer semester.

#### Administration of the Tuition Benefit Program

The Graduate School administers the Graduate Tuition Benefit Program. Verification of a student's TBP eligibility is the department's responsibility. Note: If a graduate student received a conditional tuition credit for the semester but (a) withdrew from courses, dropping below the minimum 9 credit hours; (b) received less than the minimal financial support; (c) failed to provide evidence of acceptable SPEAK test scores (as applicable); or (d) in any way did not meet all requirements or restrictions associated with any of the TBP graduate student components or Graduate School policy, the tuition credit will be rescinded. The student will be billed for tuition and fees at the full, relevant rate for that semester.

Students are not eligible to receive a tuition benefit after a semester has ended if they were not entered on the Web prior to the date the 'state's registration census' (15th day of classes) is taken. It is a department's responsibility to enter eligible students on the TBP Web page in a timely manner prior to the 15th day of the semester the student expects to receive the benefit. No retroactive benefits are awarded. With a petition from the student's department chair to the dean of the Graduate School, exceptions will be considered for personal emergencies such as illness or family emergency.

## Appendix B. Student Forms.

Copies of forms may be obtained in the GEC office (HEB 4404) or “on-line” at [www.utah.edu/graduate\\_school/forms.html](http://www.utah.edu/graduate_school/forms.html).

<b>Form 1</b>	<b>Course Approval Form .....</b>	<b>27</b>
	<i>Form must be filled out and signed by divisional advisor at the beginning of the Fall and Spring semester of the 1<sup>st</sup> year.</i>	
<b>Form 2</b>	<b>Selection of Faculty Research Advisor.....</b>	<b>28</b>
	<i>Form will NOT be approved without a minimum of four signatures.</i>	
<b>Form 3</b>	<b>Supervisory Committee Proposal Form .....</b>	<b>29</b>
<b>Form 4</b>	<b>Program of Study Form (Ph.D.) .....</b>	<b>30</b>
	<i>Form is filled out by the Academic Program Coordinator in the Graduate Office prior to Pre-Oral Exam. Please use the copy included in this appendix to track your classes and grades.</i>	
<b>Form 5</b>	<b>Request for Supervisory Committee .....</b>	<b>32</b>
<b>Form 6</b>	<b>Report on Preliminary Oral Exam.....</b>	<b>33</b>
<b>Form 7</b>	<b>Report of the Qualifying Exam.....</b>	<b>34</b>
<b>Form 8</b>	<b>Research Proposal Defense Form.....</b>	<b>35</b>
<b>Form 9</b>	<b>Report of Final Oral Examination (Ph.D.) .....</b>	<b>36</b>
<b>Form 10</b>	<b>Application to Master’s Degree Candidacy .....</b>	<b>37</b>
<b>Form 11</b>	<b>Report of Master’s Comprehensive Exam .....</b>	<b>38</b>
<b>Form 12</b>	<b>Report of Final Oral Examination (M.S.).....</b>	<b>39</b>
<b>Form 13</b>	<b>Final Reading Approval .....</b>	<b>40</b>
	<i>This form MUST be retyped in a word processing program in a format consistent with the guidelines found in “Handbook for Thesis and Dissertations” obtainable from the Thesis Editor. Five copies of the form must then be printed on THESIS BOND paper and signed by the Chair of the Supervisory Committee and the Department Chair in BLACK ink.</i>	
<b>Form 14</b>	<b>Supervisory Committee Approval .....</b>	<b>41</b>
	<i>This form MUST be retyped in a word processing program in a format consistent with the guidelines found in “Handbook for Thesis and Dissertations” obtainable from the Thesis Editor. Five copies of the form must then be printed on THESIS BOND paper and signed by the Supervisory Committee in BLACK ink at the oral defense.</i>	
<b>Form 15</b>	<b>Change of Supervisory Committee Member .....</b>	<b>42</b>
<b>Form 16</b>	<b>Exit Interview Form .....</b>	<b>43</b>
<b>Form 17</b>	<b>Graduate School Research Supplemental Travel Award Application .....</b>	<b>44</b>

## COURSE APPROVAL FORM

Student Name: \_\_\_\_\_

Semester &amp; Year \_\_\_\_\_

Note: A minimum of 9 credit hours in GRADUATE courses must be taken in order to receive a tuition benefit (maximum of 12 credit hours). Students who have not yet chosen a research advisor are required to take 12 credit hours of courses per semester.

FALL A	FALL B

Advisor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Please return to Jo Hoovey in the Graduate Education Office, 4404 HEB

SELECTION OF FACULTY RESEARCH ADVISOR  
(Submit to the Graduate Education Office, 4404 HEB)

Student Name \_\_\_\_\_

I. Signature of faculty members interviewed (*minimum* of four)

- (1) \_\_\_\_\_ (date)
- (2) \_\_\_\_\_ (date)
- (3) \_\_\_\_\_ (date)
- (4) \_\_\_\_\_ (date)
- (5) \_\_\_\_\_ (date)
- (6) \_\_\_\_\_ (date)

II. List your top three choices for your research advisor.

1<sup>st</sup> choice \_\_\_\_\_

2<sup>nd</sup> choice \_\_\_\_\_

3<sup>rd</sup> choice \_\_\_\_\_

- III.  This student has attended a Departmental Safety Seminar.  
 This student has not attended a Departmental Safety Seminar, and the research advisor must assume responsibility for his/her lack of training.

IV. Approval by the Director of Graduate Studies

\_\_\_\_\_  
(Signature of Director) (date)

V. Acceptance

I agree to serve as the research advisor for the above student and am able to provide a research stipend to the student under the condition that he/she remains in good standing within the Department and makes satisfactory progress towards the MS or PhD degree.

\_\_\_\_\_  
(Signature of Advisor) (date)

VI. Approval by the Department Chair

\_\_\_\_\_  
(Signature of Chair) (date)

## Supervisory Committee Proposal Form

Please fill in the names of the faculty, in order of preference, which you propose for your supervisory committee. After the form has been completed, have your advisor sign indicating that the proposed members are appropriate for your research. Return the form to the Graduate Education Office (HEB 4404) no later than September 1 of the 2<sup>nd</sup> year. The Graduate Education Committee will inform you of the final selection of committee members by September 15<sup>th</sup>.

Name: \_\_\_\_\_

Division: \_\_\_\_\_

Short Title of Proposed Research: \_\_\_\_\_

Advisor: \_\_\_\_\_

### Proposed Committee Members:

#### In Division (in order of preference)

#### GEC Selection

- |          |       |
|----------|-------|
| 1. _____ | _____ |
| 2. _____ | _____ |
| 3. _____ | _____ |
| 4. _____ | _____ |
| 5. _____ | _____ |

#### Out of Division (in order of preference)

- |          |       |
|----------|-------|
| 1. _____ | _____ |
| 2. _____ | _____ |
| 3. _____ | _____ |

**Out of Department** [NOTE: The student must meet with the out-of-department member and obtain his/her agreement to serve]

1. \_\_\_\_\_ Dept. Name: \_\_\_\_\_

Signature of out-of-department member: \_\_\_\_\_

Approval of Research Advisor (signature required):

\_\_\_\_\_

**Program of Study for the Ph.D. Ed.D. M. Phil. Or Professional Doctorate Degree**

Please specify

(Due at least 2 months preceding semester of graduation)

Full legal name \_\_\_\_\_ UofUID# \_\_\_\_\_  
Last First Middle

Present address \_\_\_\_\_ Telephone \_\_\_\_\_  
Street City State Zip

Permanent address (if different) \_\_\_\_\_  
Street City State Zip

Department \_\_\_\_\_ Student's Major \_\_\_\_\_

Degree(s) previously received \_\_\_\_\_ Institution \_\_\_\_\_  
(B.S., M.S., etc.) (year)

This degree is expected to be completed at the end of \_\_\_\_\_ semester, 20 \_\_\_\_\_

Proposed title of dissertation or non-dissertation project (if permitted):  
 \_\_\_\_\_

For Ed.D. only, Auxiliary Disciplines: 1. \_\_\_\_\_ 2. \_\_\_\_\_ Ed.D. Minor \_\_\_\_\_

**Language Requirement**

The Language requirement will be satisfied by the following:

Languages 1. \_\_\_\_\_ Standard Proficiency  Advanced Proficiency   
Standard Proficiency Advanced Proficiency

2. \_\_\_\_\_ Standard Proficiency  Advanced Proficiency   
Standard Proficiency Advanced Proficiency

No language required  Other requirement (e.g., statistics) \_\_\_\_\_

The program of study as outlined has been approved by the student's supervisory committee listed Below:

Name \_\_\_\_\_ Signature \_\_\_\_\_

(Chairperson)

Name \_\_\_\_\_ Signature \_\_\_\_\_

Name \_\_\_\_\_ Signature \_\_\_\_\_

Name \_\_\_\_\_ Signature \_\_\_\_\_

Name \_\_\_\_\_ Signature \_\_\_\_\_

This program of study fulfills departmental requirements:

\_\_\_\_\_  
 Signature, Chairperson of the Department or Director of Graduate Studies Date \_\_\_\_\_

Program approved by \_\_\_\_\_, Dean of The Graduate School

List chronologically only those courses that apply toward the proposed degree. Course work and thesis research hours should be projected through the intended date of completion.

Institution	When Registered	Department and Course No.	Course Title	Major Or Allied	Qtr/Sem Hours	Grade
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**THE UNIVERSITY OF UTAH GRADUATE SCHOOL  
REQUEST FOR SUPERVISORY COMMITTEE**

Return one copy to: GRADUATE RECORDS  
302 PARK BUILDING

Approved copies will be distributed to the department and student.

*This form is to be filled in by the student and submitted to Department Chair.*

Degree sought \_\_\_\_\_ Thesis: \_\_\_ Nonthesis: \_\_\_

Name \_\_\_\_\_  
Last First Middle

Salt Lake City Address \_\_\_\_\_

U of U ID# \_\_\_\_\_ Phone \_\_\_\_\_

Major \_\_\_\_\_

Supervisory Department \_\_\_\_\_

Bachelor's Degree (Date) \_\_\_\_\_ Major \_\_\_\_\_ Institution \_\_\_\_\_

Master's Degree (Date) \_\_\_\_\_ Major \_\_\_\_\_ Institution \_\_\_\_\_

**STUDENT'S SUPERVISORY COMMITTEE:** The committee, consisting of a chair plus two faculty members for the master's degree and a chair plus four members for the doctor's degree, is to be nominated by the Chair of the supervisory department or the Director of Graduate Studies according to departmental policy. One or more members of the supervisory committee shall be appointed from another department. Recommended changes in committee appointments must be submitted to the Dean of The Graduate School. Committee appointments are not final until approved by the Dean of The Graduate School.

Please type names and have members initial or sign next to them.

COMMITTEE: Chair \_\_\_\_\_

Member \_\_\_\_\_ Department \_\_\_\_\_

Member \_\_\_\_\_ Department \_\_\_\_\_

Member \_\_\_\_\_ Department \_\_\_\_\_

Member \_\_\_\_\_ Department \_\_\_\_\_

The above committee members have been nominated to serve on the student's supervisory committee.

Action by (Signature) \_\_\_\_\_ of \_\_\_\_\_ Date \_\_\_\_\_  
Dept. Chair or Director of Graduate Studies Department

*Action by The Graduate School*

Committee approved by (Signature) \_\_\_\_\_

Dean of The Graduate School

Date

**THIS FORM IS DUE BY THE SECOND YEAR OF THE GRADUATE PROGRAM**

**REPORT ON THE PRELIMINARY ORAL EXAMINATION**

In partial fulfillment of the requirements for the Ph.D. Degree,

\_\_\_\_\_  
(Student's Name)

\_\_\_\_\_  
(Date)

has been examined by this Supervisory Committee. This Committee has taken the following action in regards to this student:

Pass \_\_\_\_\_

The student's progress and aptitude have been determined to be sufficient; the Committee recommends that this student be admitted to Ph.D. candidacy.

Conditional Pass \_\_\_\_\_

The student's progress and aptitude are largely satisfactory. However, the Committee has found that certain deficiencies must first be addressed prior to admission to Ph.D. candidacy. The Committee recommends that the student do further work. Such work may include (a) additional coursework to remedy a weak background (NOTE: undergraduate courses are not covered by the University's tuition benefit), or (b) a rewrite of the manuscript portion of the pre-oral examination. A repeat of the oral exam is not required with this decision. Requirements for a full pass should be noted in the space below.

Further requirements, comments:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Not Pass \_\_\_\_\_

The student's progress and/or aptitude is/are fair but not satisfactory for admission to Ph.D. candidacy. The Committee recommends the student do further work and repeat the exam a second (and final) time. The procedures will be the same as the first meeting. The action taken at this second (and final) meeting will be to (a) Pass the student with respect to his/her research progress and aptitude or to (b) Fail the student, thereby terminating the student's eligibility for the doctoral program. This second Exam must be completed prior to a date determined by the Committee, and should ordinarily be within 9 months of the first.

Fail \_\_\_\_\_

The student has not demonstrated satisfactory research progress or research aptitude and cannot be recommended for admission to Ph.D. candidacy.

Signatures of Supervisory Committee:

\_\_\_\_\_  
\_\_\_\_\_

***Report of the Qualifying Examination for the Ph.D., Ed.D., or  
M.Phil. Degree and Recommendation for Admission to Candidacy***

(Due at least 2 months preceding semester of graduation)

Major \_\_\_\_\_

Minor(Ed.D.only) \_\_\_\_\_

*This report should be sent to the Graduate Records Office by the chair of the supervisory committee.*

Full legal name of student \_\_\_\_\_

UofU ID# \_\_\_\_\_

Present address \_\_\_\_\_

Telephone \_\_\_\_\_

Permanent address (if different)

\_\_\_\_\_

Hometown (for commencement program)

\_\_\_\_\_

Major department

Degrees Previously Received

Institution

Year

\_\_\_\_\_

Date of qualifying examination \_\_\_\_\_

The student's performance on written and oral qualifying examinations was voted as follows by the supervisory committee:

	Passed	Failed
Recommended for Candidacy	Not recommended for Candidacy	

Will your research involve living human subjects?

Yes (Institutional Review Board approval required)

No Pending (submit upon approval)

This degree is expected to be completed at the end of \_\_\_\_\_ semester, 20\_\_\_\_\_

Name

Signature \_\_\_\_\_

Chairperson

Name

Signature \_\_\_\_\_

Name

Signature \_\_\_\_\_

Name

Signature \_\_\_\_\_

Name

Signature \_\_\_\_\_

### Research Proposal Defense

Report from the Supervisory Committee on the Oral Defense of the Research Proposal

Student Name: \_\_\_\_\_

Date of Oral Defense: \_\_\_\_\_

Proposal Title: \_\_\_\_\_

The submitted proposal and its oral defense by the student are judged to merit:

\_\_\_\_\_ Pass

\_\_\_\_\_ Marginal Pass (Revisions may be required by the committee.)

\_\_\_\_\_ Failure (The quality of the work is unacceptable. The proposal should be extensively revised or a completely different proposal should be submitted.)

Comments and Revisions:

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Committee Members:

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**Application for Admission to Candidacy for the Master's Pro  
(Due at least 2 months preceding semester of graduation)**

Date: \_\_\_\_\_

Full legal name: \_\_\_\_\_ UoU ID#: \_\_\_\_\_

Last First Middle

Present Address: \_\_\_\_\_ Telephone: \_\_\_\_\_

Street City Zip

Hometown: \_\_\_\_\_

(used for commencement program)

Degree(s) previously received (BS, BA, MS, etc): \_\_\_\_\_

Institution: \_\_\_\_\_ Year: \_\_\_\_\_

Request for admission to candidacy for the degree of Master of:

Department

Major:

This degree is expected to be completed at the end of: \_\_\_\_\_ Year: \_\_\_\_\_ Thesis required or nonthesis option? \_\_\_\_\_

Description of nonthesis option if permitted:

Proposed thesis title:

Human Subjects Committee Clearance Required? (if YES, attach a copy of approval form) \_\_\_\_\_

**If work from another university is to be included in the course work listed below, please check with the Registrar to verify that official transcripts have been evaluated and recorded on the University of Utah record.**

**List chronologically work required by the Committee for the proposed degree being sure to include thesis hours in the quarter/semester taken. Graduate work that might be counted toward a doctorate but that is not required for the Master's degree should NOT be listed. Use a plain sheet of paper to list additional course work: type name on it and attach to this form.**

Institution	When Registered	Department and Course No.	Course Title	Major or Allied	Qtr/Sem Hours	Grade
U of XXXXXXXXXXXX	Sem, 1999	Acctg - XXXX	Example Course Title	Major	3	A
	,	-				
	,	-				
	,	-				
	,	-				

The program of study as outlined has been approved by the applicant's supervisory committee listed below:

Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Chairperson

Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Name: \_\_\_\_\_ Signature: \_\_\_\_\_

**This program of study fulfills departmental requirements:**

Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Departmental Chairperson/Graduate Studies Director Date

Application approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Dean of the Graduate School

Approved for graduation by: \_\_\_\_\_ Date: \_\_\_\_\_

Dean of the Graduate School

## THE UNIVERSITY OF UTAH GRADUATE SCHOOL

Date \_\_\_\_\_

**REPORT OF THE COMPREHENSIVE  
EXAMINATION FOR THE DEGREE  
OF MASTER OF ARTS OR  
MASTER OF SCIENCE**

Name of Student \_\_\_\_\_

Date of Examination \_\_\_\_\_

Major Field \_\_\_\_\_ Degree \_\_\_\_\_

Passed  Failed Examination was waived by the supervisory committee in accordance with  
the faculty regulations  
\_\_\_\_\_

This report refers to the requirement of a comprehensive oral and /or  
written examination set forth in the Faculty Regulations, Chapter IX, Section 6,  
page 2 under Examinations.

Signed: \_\_\_\_\_ Chair

THE STUDENT WILL NOT BE CLEARED FOR THE  
AWARDING OF THE DEGREE UNTIL THIS  
FORM HAS BEEN FILED IN THE  
GRADUATE RECORDS OFFICE.



THE UNIVERSITY OF UTAH GRADUATE SCHOOL

## **FINAL READING APPROVAL**

I have read the dissertation of (insert name) in its final form and have found that (1) its format, citations, and bibliographic style are consistent and acceptable; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the supervisory committee and is ready for submission to The Graduate School.

Approved for the Major Department

(insert name)

Chair/Dean

Approved for the Graduate Council

Charles A. Wight  
Dean of The Graduate School

THE UNIVERSITY OF UTAH GRADUATE SCHOOL  
**SUPERVISORY COMMITTEE APPROVAL**

of a dissertation submitted by

(insert name)

This dissertation has been read by each member of the following supervisory committee and by majority vote has been found to be satisfactory.

Chair: (insert name)

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(insert name)

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(insert name)

THE UNIVERSITY OF UTAH GRADUATE SCHOOL

DEPARTMENT

REQUEST TO CHANGE SUPERVISORY COMMITTEE PERSONNEL

STUDENT: \_\_\_\_\_ ID# \_\_\_\_\_

CURRENT PERSONNEL

(CHAIR) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PROPOSED PERSONNEL

(CHAIR) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

JUSTIFICATION FOR CHANGE: \_\_\_\_\_  
\_\_\_\_\_

APPROVED BY CHAIR OF SUPERVISORY COMMITTEE:  
\_\_\_\_\_ Date: \_\_\_\_\_

APPROVED BY DIRECTOR OF GRADUATE STUDIES (DEPT. CHAIR):  
\_\_\_\_\_ Date: \_\_\_\_\_

APPROVED BY DEAN OF GRADUATE SCHOOL:  
\_\_\_\_\_ Date: \_\_\_\_\_

Return one copy to the  
Graduate Records Office  
302 Park Building

**EXIT INTERVIEW FORM****Name:**

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Title of Dissertation (Thesis): 

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Affiliation after leaving the University of Utah:

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Title: 

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If position is a postdoc, with whom will you be working?

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Business Address: 

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Phone: 

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Home Address: 

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Phone: 

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To which of the above addresses would you like your mail forwarded?

Business 

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Home 

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**UNIVERSITY OF UTAH – GRADUATE SCHOOL**  
**GRADUATE STUDENT TRAVEL ASSISTANCE APPLICATION**  
**2009-2010**

Applications for Graduate Student Travel Assistance are invited from currently enrolled University of Utah graduate students whose research or creative project has been accepted for presentation at a professional meeting. This assistance is contingent upon the applicant presenting at the meeting.

Applications must be received in the Graduate School prior to travel dates. Requests are considered up to a maximum of \$400 and must be supported with a dollar-for-dollar match from university funds. Matching support must be from university funding sources, e.g., development, operation, service, research, etc. One award only will be made during each fiscal year (July 1-June 30) to any graduate student.

Student travel assistance funding can reimburse airfare, car mileage (in lieu of airfare), ground transportation fares such as shuttle or taxis, lodging, abstract fees and conference registration fees. The assistance will not reimburse meals, per diem, society memberships, or poster preparation fees.

Because travel requests in recent years have far exceeded funds available, the Graduate School requests departments or research units that can afford to support graduate student travel entirely on their own funds do so.

The Graduate School will determine total funds allotted for each month in the year; applications can be submitted anytime before the travel dates but are only considered for funds allotted to the month in which the travel occurs – in the event of a trip spanning the end of one month and the beginning of another, the first date of travel will be used to determine the month to which the application will be applied. Funding is granted on a first-come, first-served basis until funds for the month are exhausted. Those applications not supported will be put on a reserve list for each month to be used in the event those awarded funding cannot or do not use it.

Incomplete applications result in delays in processing. Please check off each item below to verify that it has been included with your application. The Graduate Student Travel Assistance application must include:

1. A completed application (available online at <http://www.gradschool.utah.edu/students/gstaa.php>).
2. A copy of the abstract or project description submitted for the meeting.
3. A travel estimate for eligible expenses (please note that meals and other expenses that are ineligible for travel award funding are included on the worksheet if departments wish to use them but will be deducted from the total estimate to calculate eligible expenses for travel award reimbursement).  
Use the online form found at the University of Utah Travel Department website:  
<http://afs.admin.utah.edu/download/PreRegistrationAuthorization.pdf>
4. A single-page statement about the value of the meeting and presentation to your professional development as well as to the mission of your department or research lab.

For further information, please contact the Graduate School by phone at 585-9873 or by email at [gstaa@gradschool.utah.edu](mailto:gstaa@gradschool.utah.edu).

**UNIVERSITY OF UTAH – GRADUATE SCHOOL  
GRADUATE RESEARCH STUDENT TRAVEL ASSISTANCE APPLICATION  
FOR 2009-2010**

*To be considered, applications must be received by the Graduate School prior to  
dates of travel.*

NAME: \_\_\_\_\_  
Last First/MI

ADDRESS: \_\_\_\_\_  
Academic Department/Division of Degree Sought Degree & Approx. Completion Date

\_\_\_\_\_ Campus Address E-mail Address

Have you received Graduate Research Student Travel Assistance before? No Yes If yes, what year?

MEETING: \_\_\_\_\_

CITY/STATE: \_\_\_\_\_ DEPARTURE DATE: \_\_\_\_\_

TITLE OF PAPER/PRESENTATION: \_\_\_\_\_

**FOR DEPARTMENT TRAVEL COORDINATORS:**

MAXIMUM AMOUNT OF GRADUATE RESEARCH STUDENT TRAVEL ASSISTANCE IS \$400.00

DEPARTMENT WILL MATCH UP TO \$ \_\_\_\_\_ UNIVERSITY TRAVEL NUMBER:  
\_\_\_\_\_ **(Required)**

\_\_\_\_\_ DEPARTMENT TRAVEL COORDINATOR email address

Signatures indicate commitment to matching funds up to amount listed above and belief in scholarly merit of presentation to the academic field and to the student's academic career.

\_\_\_\_\_ STUDENT ADVISOR'S SIGNATURE Date NAME OF ADVISOR email address

\_\_\_\_\_ DEPARTMENT CHAIR'S SIGNATURE Date NAME OF DEPARTMENT CHAIR email address

**Please return completed application to The Graduate School, University of Utah, 302 Park Building.**

GRADUATE SCHOOL USE ONLY:

APPROVED FOR: \$ BY APPROVED: DATE BY WAITING LIST: DATE

## Appendix C. Graduate Courses in Chemistry

Please visit [www.utah.edu](http://www.utah.edu) to determine which courses are offered during the current year.

CHEM 6810	Nanoscience	CHEM 7500	Angular Momentum Theory
CHEM 6510	Advanced Biological Chemistry	CHEM 7510	Condensed Phase Spectroscopy
CHEM 7000	Introduction to Quantum Mechanics I	CHEM 7520	Computational Chemistry Laboratory
CHEM 7010	Introduction to Quantum Mechanics II	CHEM 7530	Molecular Simulations
CHEM 7020	Introduction to Spectroscopy I	CHEM 7550	Adv. Topics Phys. Chem.
CHEM 7030	Introduction to Spectroscopy II	CHEM 7560	Adv. Topics Inorg. Chem.
CHEM 7040	Statistical Thermodynamics	CHEM 7570	Adv. Topics Org. Chem.
CHEM 7050	Classical Thermodynamics	CHEM 7580	Adv. Topics Biol. Chem.
CHEM 7060	Statistical Mechanics	CHEM 7590	Adv. Topics Analyt. Chem.
CHEM 7070	Chemical Kinetics	CHEM 7700	Analytical and Chemical Measurements I
CHEM 7080	Chemical Dynamics	CHEM 7710	Analytical and Chemical Measurements II
CHEM 7100	Principles of Inorganic Chemistry	CHEM 7720	Separations
CHEM 7110	Inorganic Mechanisms	CHEM 7730	Electrochemistry
CHEM 7120	Physical Inorganic Chemistry	CHEM 6740	Bioanalytical Chemistry
CHEM 7130	Solid State Chemistry	CHEM 7750	Information Processing
CHEM 7150	Bioinorganic Chemistry	CHEM 7760	Instrumentation Electronics
CHEM 7160	Organometallic Chemistry I	CHEM 7770	Optical Spectroscopy
CHEM 7170	Homogeneous Catalysis	CHEM 7780	Surface Chemistry
CHEM 7200	Contemporary Organic Synthesis I	CHEM 7850	NMR Spectroscopy Laboratory
CHEM 7210	Contemporary Organic Synthesis II	CHEM 6900	Directed Study (by permission of Dept.)
CHEM 7220	Contemporary Organic Synthesis III	CHEM 6970	Thesis Research M.S.
CHEM 7230	Organometallic Chemistry II	CHEM 6980	Faculty Consultation
CHEM 7240	Physical Organic I	CHEM 7860	Research Group Seminar
CHEM 7250	Physical Organic II	CHEM 7600	Faculty Research Presentations
CHEM 7260	Physical Organic III	CHEM 7800	Physical Seminar
CHEM 7270	Organic Spectroscopy I	CHEM 7810	Inorganic Seminar
CHEM 7280	Organic Spectroscopy II	CHEM 7820	Organic Seminar
CHEM 7410	Protein and Nucleic Acid Biochemistry	CHEM 7840	Biological Seminar
CHEM 7450	Biophysical Chemistry	CHEM 7870	Analytical Seminar
CHEM 7460	Protein Chemistry	CHEM 7970	Thesis Research Ph.D.
CHEM 7470	Nucleic Acid Chemistry	CHEM 7980	Faculty Consultation
CHEM 7480	Physical Principles of Biomolecular Systems	CHEM 7990	Continuing Registration: Ph.D.
CHEM 7490	Metabolism		