

# **PHD Student Guide**

**Doctoral Programs in:  
Cognition and Neuroscience  
Communication Sciences and Disorders  
Psychological Sciences**

**School of Behavioral and Brain Sciences  
The University of Texas at Dallas**

**Revised 8.24.07**

## TABLE OF CONTENTS

Introduction. . . . .	1
Program Administration. . . . .	1-2
Area Faculty	1
Graduate Studies Committee	1
Associate Dean for Graduate Studies	2
Dean	2
Advising. . . . .	2
Research Advisor	2
Academic Advisor	3
Registration	3
Degree Planning and Annual Reporting	3
Curriculum and Plan of Study. . . . .	4-8
General Core	4
Cognition and Neuroscience	4
Communication Sciences and Disorders	5
Psychological Sciences	6
Individualized Degree Plan	7
Specialization in CLDD	7
Combined Programs	7
Waiver of Requirements	8
Qualifying Papers and Projects. . . . .	8
Qualification Plan 1: Qualifying Thesis	8
Qualification Plan 2: Research Project Plus	11
Integrative Review or Grant Proposal	
Evaluation of Qualifying Papers	12
Timelines for Submission	13
Dissertation Committee . . . . .	14
Dissertation Proposal . . . . .	15
Dissertation Proposal Defense. . . . .	16
Final Oral Exam. . . . .	16
Standards for Retention in the Program. . . . .	16-18
Support for Doctoral Study. . . . .	18-19
Teaching Assistantships	19
Research Assistantships	20
TA and RA Salaries and Appointments	20
Semester Breaks	21
Other Grants and Scholarships	21
Travel Funds	21
Dissertation Support	21
Student Offices and Study Areas	22
Computer and E-Mail Accounts	22
Leave-of-Absence	22
Appendix A. . . . .	23-25

## **INTRODUCTION**

This guide is intended to provide information on policies and procedures in the Ph.D. Programs in the School of Behavioral and Brain Sciences. It is not an official document or supplement to the University catalog or other official publications. For official university policy regarding graduate studies please see the UTD Graduate Student Handbook on-line at: <http://www.utdallas.edu/dept/graddean/guide.htm> and the UTD Graduate Catalog: <http://www.utdallas.edu/student/catalog/gradcurrent/>. The BBS Ph.D. Student Guide is a working document describing current policies, procedures, offerings, and opportunities. The faculty and its representatives on the Graduate Studies Committee may make procedural changes which could affect students during their time at UTD. Likewise, legislative actions or changes in University policy may affect academic requirements. When changes occur, we will do our best to notify you in a timely manner. Check your UTD e-mail regularly. If there are questions not answered here or if you are unsure about policies and procedures, please contact Dr. Stillman, Associate Dean for Graduate Studies or your Program Head (Dr. Bartlett for Cognition and Neuroscience, Dr. Stillman for Communication Sciences and Disorders, or Dr. Spence for Psychological Sciences.)

In the Fall 2004 semester, the Ph.D. program in Human Development and Communication Sciences with its three tracks in Cognition and Neuroscience, Communication Sciences, and Developmental Psychology were replaced by separate Ph.D.s in areas corresponding to the three tracks. The three Ph.D.s were implemented to emphasize the School's strengths in both disciplinary and interdisciplinary study relating to communication, cognition, development, and the neural bases of cognition and behavior. However, the three Ph.D. programs continue to share faculty, courses, and facilities and study across the 3 programs is encouraged when it serves to further a student's research interests.

## **PROGRAM ADMINISTRATION**

The administration of the Ph.D. programs is divided among committees and individuals each having specific responsibilities. Their roles and responsibilities are described below. Two of the most important individuals with whom you will interact are your research advisor and your academic advisor. Their roles are described in the Advising section.

### **Area Faculty**

The faculty who participate in teaching and research supervision within a particular Ph.D. program constitute that program's Area Faculty. The Area Faculty are responsible for the program's curriculum and requirements, advising and mentoring, and evaluation of student performance and progress.

### **Graduate Studies Committee**

The Graduate Studies Committee oversees the doctoral program and is responsible for implementing and monitoring graduate policies and procedures. It is especially concerned with issues affecting all of the doctoral programs. It oversees admissions,

appointment and assignment of teaching assistants, student travel, course scheduling, and participates in the evaluation of qualifying papers and projects. The Graduate Studies Committee is composed of the program heads of the three Ph.D. programs, the doctoral program in Audiology, and the masters programs in Applied Cognition and Neuroscience, Communication Disorders, and Human Development and Early Childhood Disorders. The Graduate Studies Committee meets twice a month except in summer.

### **Associate Dean for Graduate Studies**

The Associate Dean for Graduate Studies (Dr. Stillman) is the chair of the Graduate Studies Committee and administrator of the graduate programs. The Associate Dean also serves as the liaison with the UTD Graduate Council and the UTD Dean of Graduate Studies (Dr. Cunningham.)

### **Dean**

The Dean of the School (Dr. Moore) is the head administrator of the School. He is responsible for managing all of the School's activities, both graduate and undergraduate.

## **OVERVIEW OF DOCTORAL STUDY**

Doctoral study may be divided into a sequence of milestones each of which is described in this guide. The milestones include selection of a research advisor (nearly all students have selected an advisor at the time of initial enrollment), preparation of a plan of study and completion of the core coursework, completion of qualifying projects and papers, preparation and defense of the dissertation proposal, and completion and defense of the dissertation.

## **ADVISING**

### **Research Advisor**

All students have both a research and academic advisor. The research advisor is the primary faculty member with whom the student works and who oversees and provides mentoring in research, in the selection of courses prior to registration, and in preparation of the student's degree plan. The research advisor supervises and must sign off on the student's qualifying proposals and papers, and other documents submitted to the Graduate Studies Committee.

By the end of the first semester, all students, including part-time students, must have the consent of a faculty member to serve as their research advisor. Because it is important to begin participating in research from the start, students who have not identified an advisor in the first semester risk termination from the program. All tenure-track faculty members are eligible to serve as a research advisor. For a detailed description of faculty research interests, see the School's webpage or individual faculty webpages. Of course, the best way to learn about research opportunities is to visit the various labs and meet with faculty and other doctoral students.

Students may and do change research advisors for many reasons. Such changes are acceptable, although they may affect your progress. If you feel uncomfortable about

initiating a change, speak with your academic advisor or the Associate Dean. **A student who at any time lacks a research advisor for a full semester is subject to dismissal from the program.**

### **Academic Advisor**

The Academic Advisor for each program is the Program Head. The Academic Advisors may be consulted on any matter pertaining to doctoral study. Issues related to course requirements, program procedures and opportunities, credit transfers, and other student academic issues should be addressed to the academic advisors. Currently, the academic advisors for students in **Cognition and Neuroscience** is Dr. Bartlett; for students in **Communication Sciences and Disorders**, Dr. Stillman; and for students in **Psychological Sciences**, Dr. Spence.

### **Registration**

Prior to registration each semester, students must meet with their research advisor to complete their registration form. The signature of the research advisor is required before registering. It may also be useful periodically to discuss course options with an academic advisor. Input from an academic advisor is particularly important in the first 2 years when students are completing their core coursework. The academic advisors tend to be more familiar with the sequence of course offerings and projections for future courses. Not all core courses are offered every year and you must plan ahead to avoid delays in meeting coursework requirements.

When the registration form has been completed and signed, the form is brought to the Doctoral Program Secretary (Mary Filipe). Students at Callier may bring their forms either to the AUD Program Secretary (Connie Hoggard) or the COMD Program Secretary (Barbara Ember.) The Program Secretary will register you online. If you wish to add or drop a course, you must repeat the process starting with your research advisor. Occasionally, there are “holds” on your registration. Holds result from missing documents, unpaid fees, financial aid issues, or even an incorrect mailing address. You will have to resolve these holds before you can register. It is also important that you regularly review your registration and payments on your Student Information Systems (SIS) account. Errors are difficult to correct if they are not caught quickly.

### **Degree Planning and Annual Reporting**

All students entering the program in the fall must submit a degree plan by October 1 of their second year. The purpose of degree planning is for the student to develop a plan of study leading to the dissertation and to establish timelines for completion of program requirements. Degree plans must be reviewed and updated annually. Degree planning may be undertaken with the student’s research advisor, academic advisor, or both. All degree plans are reviewed and approved by the appropriate Area Faculty. Students also submit an annual report to the Graduate Dean and a separate report to the Area Faculty detailing progress and projected completion dates. An up-to-date degree plan is very useful when preparing the annual report form. You will be notified well in advance when

annual reports are due. We are developing a student webpage which will provide the essential forms for degree planning and annual reporting.

### **CURRICULUM AND PLAN OF STUDY**

The curriculum for each of the Ph.D. programs consists of a General Core, a Major Field Core, Advanced courses, Independent Study/Research, and Dissertation. The general core taken by all Ph.D. students includes 6 credits of Doctoral Proseminar and 6 credits of Research Methods and Statistics. The specific requirements for each of the Ph.D. programs are described in the next section. The doctoral degree requires a minimum of 90 graduate hours.

To assure timely completion of the Ph.D., the State limits the number of credit hours a student may accumulate toward the degree. For students entering with masters degrees, the maximum number of additional credits permitted is 99. For students entering without prior graduate coursework, the maximum is 129 credits. There are a variety of sanctions on the student, supervising professor, and the School for retaining students beyond the maximum. You should keep careful track of the hours you accumulate to be sure you do not exceed the limit. Students who are simultaneously earning the Ph.D. and clinical certification in speech-language pathology or audiology at UTD are exempt from the above enrollment limits.

#### **General Core**

The Doctoral Proseminars (HCS 6302, HCS 6303) are designed to introduce students to the faculty and research domains encompassed within the School. The fall semester typically focuses on the areas of developmental and social psychology and hearing and speech science. The spring semester focuses on language, cognitive science, and neuroscience. The Doctoral Proseminars are supplemented by school-wide colloquia featuring internationally known scientists and area-specific brown-bag seminars which include presentations by students, BBS faculty, and occasionally faculty visiting from other universities. Students are expected to attend the colloquia and the brown-bags. The colloquia and brown bags are announced on the BBS webpage and through email.

The Research Methods courses (HCS 6312 and HCS 6313 or HCS 7372: Seminar in Quantitative Methods in the Neurosciences) provide the foundation for research design and statistical analysis. Most students are required to take additional coursework in research design and statistics or other research tools in areas specific to their research.

#### **Program-Specific Coursework**

Each Ph.D. program offers specific Core, Advanced, and Elective courses. In some cases the courses meet requirements for more than one of the Ph.D. programs. Below are the specific requirements for each of the Ph.D. programs.

**COGNITION AND NEUROSCIENCE**

**Doctoral Proseminar (6 SCH)**

- HCS 6302 Issues in Behavioral and Brain Sciences I
- HCS 6303 Issues in Behavioral and Brain Sciences II

**Research Methods (6 SCH minimum)**

- HCS 6312 Research Methods in Behavioral and Brain Sciences – Part I
- HCS 6313 Research Methods in Behavioral and Brain Sciences – Part II

*or*

**Cognition and Neuroscience Core Courses (6 SCH minimum).** Students must take a minimum of one Cognition Core and one Neuroscience Core, choosing from those listed below.

1. Cognition

- HCS 6330 Cognitive Science
- HCS 6395 Cognitive Psychology

2. Neuroscience

- HCS 6346 Systems Neuroscience
- HCS 7344 Functional Neuroanatomy

**Advanced Electives (9 SCH minimum).** In addition to completing the 6 SCH core requirements, students will take a minimum of 9 SCH of advanced electives. Any HCS course may count as an advanced elective. This includes core courses (see above), though no course can be counted both as a core and an advanced elective for any single student. Advanced electives are selected by students with the concurrence of their research advisors based on the students’ research foci. Depending on a student’s background and the requirements of his or her dissertation research, additional advanced electives beyond the 9 SCH minimum will be necessary. Possible research foci and advanced elective courses are listed below.

Research Focus	Cellular Neuroscience	Cognitive Aging	Speech/Language Processing
Advanced Electives	HCS 6340 Cellular Neuroscience HCS 7347 Seminar in Synaptic Physiology HCS 7348 Seminar in Cortical Connections	HCS 7367 Aging and Cognition HCS 7351 Aging and the Nervous System HCS 6333 Memory	HCS 6367 Speech Perception HCS 7367 Speech Perception Lab HCS 7349 Text comprehension Seminar

## **COMMUNICATION SCIENCES AND DISORDERS**

### **Doctoral Proseminar (6 SCH)**

- HCS 6302 Issues in Behavioral and Brain Sciences I
- HCS 6303 Issues in Behavioral and Brain Sciences II

### **Research Methods (9 SCH minimum)**

- HCS 6312 Research Methods in Behavioral and Brain Sciences – Part I
- HCS 6313 Research Methods in Behavioral and Brain Sciences – Part II
- Approved Advanced Research Methods/Statistics course

**Core (6 SCR minimum)** Students must complete a minimum of 6 semester credit hours of approved COMD or AUD prefixed courses. Courses meeting this requirement will vary depending on the student's research interests. The requirement may be waived for students holding a graduate degree in the field of speech-language pathology or audiology. Students lacking an adequate foundation in communication sciences may be required to complete more than the 6 SCH minimum of Core coursework.

**Communication Sciences and Disorders (3 SCH minimum)** All students must complete a minimum of 3 SCH of doctoral coursework offered through the Ph.D. program in Communication Sciences and Disorders.

**Supplemental Coursework (12 SCH minimum)** All students must complete an additional minimum of 12 SCH's of doctoral level courses and seminars. Courses may be selected from doctoral level coursework offered through the Ph.D. programs in Communication Sciences and Disorders or, with advisor approval, from the doctoral coursework offered through the Ph.D. programs in Cognition and Neuroscience and Psychological Sciences.

## **PSYCHOLOGICAL SCIENCES**

### **Doctoral Proseminar (6 SCH)**

- HCS 6302 Issues in Behavioral and Brain Sciences I
- HCS 6303 Issues in Behavioral and Brain Sciences II

### **Research Methods (6 SCH minimum)**

- HCS 6312 Research Methods in Behavioral and Brain Sciences – Part I
- HCS 6313 Research Methods in Behavioral and Brain Sciences – Part II

**Psychological Science Core Courses (12 SCH minimum).** Students will declare a major in Developmental Psychology, Cognition, or Social/Personality Psychology. Students must take four core courses from those listed below. Two of these courses must be selected from the major area, and the four courses must be selected from at least two of the four areas listed.

1. Developmental Psychology
  - HCS 6350 Social Development
  - HCS 6331 Cognitive Development
  - HCS 6368 Language Development
2. Cognition
  - HCS 6395 Cognitive Psychology
  - HCS 6330 Cognitive Science
  - HCS 6333 Memory
3. Social/Personality Psychology
  - HCS 6371 Social Psychology
  - HCS 6327 Personality
4. Neuroscience
  - HCS 6346 Systems Neuroscience
  - HCS 7344 Functional Neuroanatomy

**Advanced Electives (9 SCH minimum).** After completing the 12 SCH core requirements, students will take an additional 9 SCH of advanced electives. Any core course (see above) may count as an advanced elective (though it cannot count both as a core course and as an elective). One of these 3-hour elective courses must be an advanced research methods course. Students may enroll in other advanced electives from the other doctoral course offerings available in the School, including courses in language and communication. Additional advanced electives are available each semester.

**Individualized Degree Plan:** The 3 Ph.D. programs offer considerable flexibility and choice. However, occasionally there is the need to develop an individualized degree plan. Students whose interests cut across two or more of the three Ph.D. programs and whose goals cannot be achieved within the typical plan of study for any of the Ph.D. programs have the option to request an individualized plan. Individualized plans require a clear statement of goals and a description of how the plan would facilitate the student in meeting those goals. It also requires a degree plan identifying proposed courses and course sequences. The individualized degree plan must be prepared with and approved by the research advisor and submitted to the Graduate Studies Committee. The Graduate Studies Committee must approve and may modify individualized degree plans. For additional information regarding individualized degree plans, please contact your Program Head.

**Specialization in Child Language Development and Disorders (CLDD)**

In addition to the three Ph.D. programs, the School offers a specialized sequence of courses for students with interests in the development and disorders of language in children. Students enrolled in any of the Ph.D. programs may select the CLDD specialization. Please contact an area advisor or Dr. van Kleeck for information regarding this specialization.

**Combined Programs (M.S./Ph.D. and Au.D./Ph.D.)**

Students wishing to earn clinical certification in speech-language pathology or audiology in combination with the Ph.D. may apply to the combined program. Contact Dr. Stillman (speech-language pathology) or Dr. Thibodeau (audiology) for details. Combined programs with other masters degrees are not available.

### **Waiver of Requirements**

Students entering a Ph.D. program with an in-field masters degree or other graduate-level courses relevant to the degree may, with the approval of the Graduate Studies Committee, waive specific course requirements. Students wanting to waive a requirement should submit a request to the Ph.D. Program Head and attach the course syllabus of the equivalent course previously taken. Generally, only courses in which a grade of A was earned will be considered. It is not necessary to formally transfer courses to UTD. In some cases, the Area Faculty may require a substitute course rather than waive the requirement. Students with a graduate degree in speech-language pathology or audiology entering the Communication Sciences and Disorders Ph.D. program will have their Major Field Core courses waived.

### **QUALIFYING PAPERS AND PROJECTS**

In order to be advanced to candidacy, students must successfully complete their qualifying papers and projects. These papers and projects are in lieu of a qualifying examination. The goal of the qualifying papers and projects is for the student to demonstrate mastery of the literature in their field of research and competence in conducting research. There are two qualifying plans. Students may select either Plan 1 or Plan 2 with the approval of their research advisor.

#### **Qualification Plan 1: Qualifying Thesis**

The Qualifying Thesis is a research project supported by an extensive literature review. The written project will be in the form of a published journal article and the resulting project will resemble the dissertation research project. However, the Qualifying Thesis is less comprehensive than the dissertation.

The Qualifying Thesis is guided and evaluated by a Qualifying Committee consisting of the student's research advisor and two additional faculty members. The student will consult with the research advisor to determine two faculty members who have appropriate research expertise for the proposed research project. The research advisor will serve as Chair of the committee. Additionally, one of the members will serve as Committee Vice-Chair and will assume the responsibilities of the Chair if the Chair should become unable to supervise the research project. The Qualifying Committee has the dual role of providing guidance and feedback in the design, conduct, and write-up of the study, and in evaluating the final product.

The first step is to work with your research advisor to identify a research question and to develop a pre-proposal for the thesis. This pre-proposal will provide an overview of the proposed research area and specific research question. When a suitable project has been

identified and framed, the student will consult with the research advisor to identify two other faculty committee members. The student will provide a copy of the pre-proposal to the committee members and invite them to serve on the committee. Contact these faculty members several weeks in advance of the deadline so there is sufficient time for faculty to review the pre-proposal and discuss it with you. All faculty members agreeing to serve on the Qualifying Thesis committee will sign the Qualifying Thesis Committee Membership form. Submit the pre-proposal and Thesis Committee Membership form to the BBS Graduate Student Office by the deadline date noted below.

After the committee is formed, the student develops a proposal with the guidance of the three committee members. The proposal will be written in journal format, and include a complete Introduction and Method sections, as well as an overview of the statistical analyses, hypothesized results, and significance of the results. Following completion of the proposal, the student should provide copies of the proposal to all committee members and schedule a meeting with the committee. During the committee meeting, the student will defend the proposal for the thesis. The committee may either approve the project as proposed or require revisions or changes to the project. The committee's decisions on the project should be noted on the Qualifying Thesis Proposal Approval Form. *The proposal approved by the Qualifying Committee is an agreement regarding the design of the study and the breadth of research literature to be surveyed in the thesis. Committee Approval of the proposal is required before data collection for the project can begin.*

After the research project and written thesis are completed, the final thesis is submitted for review by the Qualifying Committee. A formal thesis defense meeting of the committee and the student must be held at least two weeks following the date the paper is submitted. The student will present the research project and answer questions about the research and the research area. A public presentation of the research project is also required.

Qualifying Theses are evaluated as "acceptable", "acceptable with revisions", or "not acceptable". "Acceptable" means that the student has clearly met the criteria established for successful completion of the research project and thesis. However, in most cases, minor editorial changes will be necessary before final approval is given. In cases of "acceptable with revisions", the Qualifying Committee will specify recommended changes in the paper, and require the student to submit a revision incorporating these changes. Along with the revised manuscript, the student must submit a detailed cover letter indicating where specified revisions have been made and the pages where the revisions may be found and/or a full explanation why the student decided not to make changes recommended by the Qualifying Committee. All revisions of papers rated "acceptable" or "acceptable with revision" must be approved by the Qualifying Committee by the end of the semester in which the paper was due. *A rating of not acceptable on a Qualifying Thesis will result in the dismissal of the student from the program.* It should be noted that a competently conducted Qualifying Thesis will not be rated "not-acceptable" due to disappointing data. Committee approval of a Qualifying Thesis proposal indicates the faculty is satisfied with the design of the study. Committee

members will indicate their evaluation of the project on the Qualifying Thesis Final Approval Form.

To complete the Qualifying Thesis requirement, the student must present the project at an open seminar or “brown bag” meeting. This requirement is intended to give students experience in public presentation prior to the dissertation proposal defense. It is also a way to disseminate information to faculty and students regarding doctoral student research within the school. Performance in the presentation will not affect acceptance of the project. However, students will receive feedback which will help to develop presentation skills. The Psychological Sciences Program Head should be consulted for scheduling the presentation of your research project.

The following dates are deadlines for completion of each of these steps.

First year:

February 15:

- 1) Qualifying Thesis Committee identified
- 2) Two-three page pre-proposal submitted to Qualifying Thesis Committee. The pre-proposal (in abstract form) will provide an overview of the proposed research area and specific research question. The pre-proposal should provide sufficient information about the project for prospective committee members to determine if they will serve on the committee.
- 3) Qualifying Thesis Committee Membership Form and pre-proposal submitted to BBS Graduate Student office.

Second year:

October 1:

- 1) Proposal submitted to Qualifying Thesis Committee. Proposal will be written in journal format, and include a complete Introduction and Method sections, as well as an overview of the statistical analyses, hypothesized results, and significance of the results.
- 2) Copy of proposal submitted to BBS Graduate Student office.
- 3) Student defends Qualifying Thesis in Committee Meeting, and Committee approves the project or requires revisions to the project.
- 4) Following Committee approval of proposal, student submits Qualifying Thesis Proposal Approval Form and copy of revised proposal (if requested by committee) to the BBS Graduate Student office.

February 15:

- 1) Progress Report submitted to Qualifying Thesis Committee and BBS Graduate Student Office

The progress report will include information about the status of data collection and analysis, any changes to the project that were recommended by the committee after the project was underway, and the expected time line for project completion.

Third Year:

Oct 1: (or second month of the student's third year in the program for part-time students)

Deadline for Completion of the Qualifying Thesis requires

- 1) Thesis Defense Meeting held with Qualifying Thesis Committee
  - a. Qualifying Thesis Final Approval Form signed and submitted to BBS Graduate Office
- 2) Public Presentation of Thesis

### **Qualification Plan 2: Research Project plus Integrative Literature Review or Grant Proposal**

Plan 2 requires 2 separate projects: a research project conducted under the supervision of the research advisor and submitted for review in publication format and a second paper, either an integrative literature review or grant proposal, which demonstrates substantive knowledge of the research literature in a specific field.

#### **Research Project:**

The research project is a pilot-type study designed and conducted by the student and which usually has its roots in work already being conducted in the research advisor's lab.

It is a study sufficiently narrow in scope to be completed within 7 months, but sufficiently comprehensive to demonstrate research skill in the student's field of study. The completed study is written up in journal format for evaluative review.

A proposal describing the rationale and methodology of the research project is developed in consultation with the student's research advisor, and approved first by the research advisor and then by the Graduate Studies Committee. A two-to-five page proposal for the project should be submitted to the Graduate Studies Committee no later than February 1 of the year in which the paper will be submitted. Appendix C provides an outline of the format for submission of research project proposals. Students should obtain approval from the Graduate Studies Committee for their research project before collecting anything more than preliminary data.

Students who have completed a masters thesis may request a waiver of the research project requirement. To be considered for a waiver, submit a copy of the thesis to the Graduate Studies Committee. In order for a masters thesis to substitute for a research project, it must meet the same criteria applied to research projects. Of paramount importance is that the thesis demonstrates research competence commensurate with undertaking a dissertation in the student's area of interest. Some masters theses will not meet this important criterion.

**Integrative Literature Review:** The integrative literature review is an original critical analysis of research in a field. It should be written in accordance with the publication guidelines of a prominent journal in a relevant research area and demonstrate rigor, scope, and originality commensurate with publication. The review should be based on independent thinking, and should be sufficiently original that it contributes to knowledge

in a field. It should not simply organize and summarize this knowledge, unless a novel organization and summary of findings constitutes a genuine contribution to knowledge.

A proposal defining the topic and scope of the integrative review is developed in consultation with the student's research advisor and must be approved first by the research advisor and then by the Graduate Studies Committee. A two-to-five page proposal for the paper should be submitted to the Graduate Studies Committee. The proposal should convey the goals of the paper, the domain of literature to be reviewed, and include references to key articles that will be cited in the paper. It must also indicate the particular journal model the student is following (possibilities include Psychological Review and Psychological Bulletin).

**Grant Proposal:** The grant proposal is designed to provide students experience in analyzing and synthesizing the research literature and in developing the rationale, literature review, and design of a potentially fundable study. Before beginning the grant proposal, the student must submit to the Graduate Studies Committee a pre-proposal, approved by the student's research advisor defining the scope and research goals of the grant proposal. It is expected that the proposal will conform to the format and requirements of a major Federal granting agency such as NIH or NSF. Use of any other format will require clear justification and a copy of the proposal instructions since proposals submitted to foundations and other agencies may be too limited in scope to meet the requirements of a doctoral qualifying project. For grants applications having page limitations which allow only a very brief literature review, the student may be required to submit a more comprehensive supplemental literature review and references to demonstrate knowledge of the relevant research literature. It is expected that students will submit their grant proposals to the relevant agency for consideration for funding.

### **Evaluation of Qualifying Papers**

The Qualifying Thesis is evaluated by the Qualifying Committee. Research Projects, Literature Reviews, and Grant Proposal are evaluated by 2 "readers." The first reader is the student's research advisor. The "second reader" is a member of the faculty, assigned by the Graduate Studies Committee and who typically remains anonymous. The Graduate Studies Committee receives the reviews of the readers and makes the final rating. In cases of substantial disagreement between the readers, the Graduate Studies Committee may appoint a third reader to provide additional evaluative information on the paper. It is the goal of the Graduate Studies Committee to complete all reviews within a month. However, papers submitted near holiday breaks or over the summer when faculty may be unavailable may result in significant delays in the review process. The deadlines for submission of papers avoid these breaks. Students are expected to adhere to the submission deadlines unless an extension is requested and approved by the Graduate Studies Committee.

Qualifying Papers and Qualifying Thesis are evaluated: "acceptable", "acceptable with revisions", or "not acceptable". "Acceptable" means that the student has clearly met the criteria established for successful completion of the paper. However, in most cases,

minor editorial changes will be necessary before final approval is given. In cases of "acceptable with revisions", the Qualifying Committee or Graduate Studies Committee will specify, in writing, recommended changes in the paper, and require the student to submit a revision incorporating these changes. Along with the revised manuscript, the student must submit a detailed cover letter indicating where specified revisions have been made and the pages where the revisions may be found and/or a full explanation why the student decided not to make changes recommended by the Qualifying Committee or Graduate Studies Committee. The revised paper is then re-reviewed by the second reader who provides a rating as well as any requirements for additional changes. All revisions of papers rated "acceptable" or "acceptable with revision" must be approved by the Qualifying Committee or Graduate Studies Committee by the end of the semester in which the paper was due.

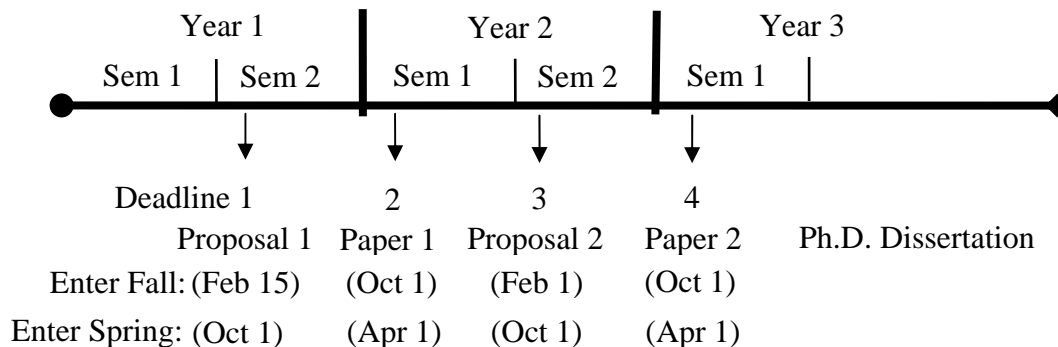
If a Research Project, Literature Review, or Grant Proposal is rated "not acceptable", the Graduate Studies Committee will provide the student with written feedback indicating a recommended course of action. A second evaluation of "not acceptable" will result in the student being dropped from the program. This holds whether the re-submission is on the same or different topic or whether the research advisor is the same or a different member of the faculty. A rating of "not acceptable" on a Qualifying Thesis will result in the dismissal of the student from the program.

It should be noted that a competently conducted Research Project or Qualifying Thesis will not be rated "not-acceptable" due to disappointing data. Committee approval of a Research Project proposal or Qualifying Thesis proposal indicates the faculty is satisfied with the design of the study.

To complete the Research Project or Qualifying Thesis requirement, the student must present the project at an open seminar or "brown bag" meeting. This requirement is intended to give students experience in public presentation prior to the dissertation proposal defense. It is also a way to disseminate information to faculty and students regarding doctoral student research within the school. Performance in the presentation will not affect acceptance of the project. However, students will receive feedback to help the student develop presentation skills. The area advisor will help schedule the presentation of your research project.

### **Timelines for Submission**

For all projects, the initial proposal is due February 15 for students entering in Fall. For students following Qualifying Plan 2, the table below indicates due dates. For students following Qualifying Plan 1 (Qualifying Thesis), the final paper is due at the same time as the second paper. Any variation from these timelines requires the approval of the Graduate Studies Committee. In order for students to complete the program within the 99-hour limit and while they are eligible for assistantship support, it is important to finish the qualifying process within the first semester of the 3<sup>rd</sup> year.



For part-time students, the first proposal or Qualifying Thesis proposal is due in the second month of the semester in which the student is enrolled in the 15<sup>th</sup> hour of graduate study (provided the student has taken HCS 6312, Research Methods I.) The first project in final form is due in the second month of the semester in which the student is enrolled for the 30<sup>th</sup> hour of doctoral study. The Qualifying Thesis or second paper is due in the second month of the semester in which the student is enrolled for the 54<sup>th</sup> hour of doctoral study. It is possible for students to extend their deadlines by limiting their enrollment. However, students should be aware of both the 10-year limit for completion of doctoral studies and that a minimum of 90 hours is required for the degree. Finally, part-time students not showing consistent effort and progress in completing requirements are at risk for being dropped from the program.

### The Dissertation

**Dissertation Committee:** The dissertation committee oversees and assists the student in developing a dissertation proposal, carrying out dissertation research, and reviewing and evaluating the written dissertation. Students may form a dissertation committee whenever they choose. But, the committee must be approved before the dissertation proposal is prepared. The student selects 4 UTD faculty members for the committee with 1 of the 4 designated as the committee chair. Additional faculty from inside or outside the university may be selected, but the student should be aware of the difficulties this sometimes presents in scheduling meetings and obtaining signatures, especially when off-campus faculty are selected. It is extremely important that the student select committee members who have the greatest expertise in the area of the dissertation. This will not only strengthen the dissertation, but help assure that the student gets the best possible advice and avoids costly methodological mistakes.

In general the chair of the dissertation committee is a tenured or tenure-track faculty member in BBS. Occasionally, a student may wish to appoint a co-chair from off-campus (e.g. when the student plans to conduct considerable work in an off-campus lab) or appoint a non-tenure track faculty member with relevant expertise. Please consult the on-line UTD Graduate Student Handbook for the specific rules regarding the appointment of non-UTD and non-tenure-track faculty.

When the committee has been formed, the student submits a form signed by the proposed members of the committee to the Graduate Studies Committee for approval. The request should be accompanied by the title and a 1-2 page description of the proposed dissertation research. It is recommended that students submit this documentation to the Graduate Studies Committee during March or April of the student's third year of study. The Graduate Studies Committee may choose to add an additional committee member, if they feel the proposed committee lacks the breadth of expertise to effectively guide and evaluate the student's research.

**Dissertation Proposal:** The dissertation proposal is a comprehensive prospectus for the dissertation. It includes a rationale, statement of the problem, specific hypotheses, discussion of relevant literature, methodology and procedures, a plan for statistical analysis, and when appropriate, pilot results. It is generally assumed that the student will have completed relevant research with the supervising professor and that the dissertation proposal is an outgrowth of that research. Although preparation of the dissertation proposal is overseen by the dissertation chair, it is important to keep other members of the committee informed of progress and, where appropriate, to invite their critique of the rationale, design, and proposed methods of data analysis.

At the first meeting of the dissertation committee the student will submit to the committee members a form signed by the student and supervising professor stating whether data intended for inclusion in the dissertation has already been collected, either by the student or others (as in the case of a study using archival data) . If data beyond pilot data has been collected, the student will specify to the dissertation committee the source of the data to be used for the dissertation research, the student's involvement with the projects from which the data are to be drawn, and why the use of the data is appropriate for the dissertation research project. This information and plan for the dissertation research must be approved by the dissertation committee.

Whether or not dissertation data has been collected prior to the formation of the dissertation committee any plan to collect additional data prior to the oral defense of the proposal to the faculty must be disclosed by the student at a meeting with the Program Head and Associate Dean for Graduate Studies. They will determine if there is justification for continued data collection prior to the faculty's opportunity to review the dissertation proposal at the oral defense. Failure to disclose prior data collection, or plans to collect additional data, could be considered scholastic dishonesty.

To assure the dissertation committee continues to play a role in contributing to and oversight of the dissertation research, a meeting of the dissertation committee must occur at least once each semester (excluding summer) and the student must provide an oral and/or written progress update to the committee at that time. The University requires an annual meeting and report.

When the proposal is completed, the student presents the proposal to the full committee. When the committee members are satisfied with the proposal or feel that it should be

formally evaluated by the School's faculty, they will sign a form requesting a public defense of the dissertation proposal.

**Dissertation Proposal Defense:** The Ph.D. program secretary schedules the dissertation proposal defense at the request of the committee chair. All faculty and students are invited to attend the dissertation proposal defense. In scheduling the proposal defense, the faculty must receive at least 2-weeks advanced notice. In addition, one copy of the dissertation proposal must be available in the Program Office at least two weeks in advance of the defense for faculty who wish to review it. *In no case may the public defense of the dissertation proposal take place until after the student has passed the qualifying papers.* The oral defense of the dissertation proposal may be scheduled only when classes are in session. They may not be scheduled during final exams or between semesters.

The dissertation proposal defense begins with a presentation of the background and goals of the proposed research and the methods to be employed. The presentation is followed by questions from members of the dissertation committee and others in attendance. Following the conclusion of questions, all members of the faculty in attendance meet to vote on whether the student demonstrated mastery of the theoretical issues and empirical findings of his/her field of specialization and was able to orally present and defend his/her research proposal in a manner commensurate with the Ph.D. degree. Passing is by vote of the majority of faculty in attendance. In some cases, the faculty will offer recommendations to strengthen the project. Although the student and the student's dissertation committee are not bound to accept these recommendations, it is assumed that these recommendations will be given careful consideration.

Students who fail the first oral defense of their dissertation proposal must re-defend before the end of the following semester. Students who fail the oral defense of their dissertation proposal a second time or who fail to hold the defense prior to the end of the following semester will be dropped from the program.

**Final Oral Exam:** After passing the dissertation proposal defense, the student proceeds to carry out the dissertation under the supervision of the committee chair with assistance from other members of the dissertation committee. Upon completion of the written dissertation and approval of the dissertation by a majority of the student's supervising committee, the student takes a final oral exam. The exam is administered by a faculty member appointed by the Graduate Dean and is open to the public. Procedures for submission of the dissertation and final oral examination may be found in the Graduate Catalog and in Policy Memorandum 78-111.25-48, "Policy on Procedures for Completing a Graduate Degree", which is available in the office of the Executive Dean of Graduate Studies.

### **Standards for Retention in the Program**

To remain in the doctoral program, students must meet the academic standards of the University and the School of Behavioral and Brain Sciences, and demonstrate

satisfactory progress toward completion of their degree. The Area Faculty for each Ph.D. program meets once/year to review the progress of students majoring in the area. Their recommendations are forwarded to the Graduate Studies Committee. The Graduate Studies Committee reviews the recommendations and notifies students by letter whether their progress is satisfactory or unsatisfactory. In some cases, students may be given deadlines for completion of specific requirements to which they must adhere to remain in the program. Students are encouraged to meet with their advisors periodically to discuss their progress and obtain informal feedback. Students whose progress is unsatisfactory risk loss of their assistantship and may be dropped from the program.

The following are among the standards considered in determining whether a student is making satisfactory progress:

- (1) Students must maintain a grade-point average of at least 3.0 in all doctoral-level courses. A grade of Pass (P) is expected in all independent studies courses. An overall GPA below 3.0 results in academic probation and automatic suspension of TA/RA support. However, a GPA of 3.0 represents the minimum for graduate student retention in the University. Doctoral students are expected to excel in their coursework and consistent grades at the minimum level of acceptability may be evidence of lack of satisfactory progress.
- (2) Grades of incomplete (X) may indicate an inability to keep up with coursework. By university rules, failure to resolve an incomplete within eight weeks after the date grades are due for the semester results in an automatic F. Although there are occasions when an incomplete is unavoidable, repeated incompletes suggest a failure to meet deadlines and may result in the student being dropped from the program.
- (3) Students are expected to demonstrate continuing progress in acquiring the research skills, specialized knowledge, and technical writing abilities necessary to develop a dissertation proposal and to conduct dissertation research. Participation in faculty-supervised research and independent study is expected of all full and part-time students. In addition, students are expected to participate in area “brown-bag” seminars and attend School-wide colloquia and periodic lectures. All of these activities are intended to enrich the education of our students and all students are expected to participate. All students are expected to participate in the intellectual life of the School.
- (4) Students are expected to meet, on-schedule, milestones leading to completion and defense of the dissertation. These include identification of a research advisor, submission of proposals for the qualifying projects, completion of the qualifying projects and any revisions required by the Graduate Studies Committee, identification of a dissertation committee,

preparation of a dissertation proposal, and public oral defense of the proposal. Students who fall substantially behind risk the loss of assistantship support and possible dismissal from the program.

Students who find they are unable to meet deadlines or achieve expected grades because of personal or professional conflicts are encouraged to meet with their research advisor and the program head. Options include requesting a leave-of-absence or declining assistantship support (with assurance that the support will be renewed in the future.) All requests for leave-of-absence or holding of an assistantship position require the approval of the Graduate Studies Committee and cannot be assumed.

### **SUPPORT FOR DOCTORAL STUDY**

Financial support for doctoral study is available from a variety of sources including teaching assistantships, research assistantships, student-hourly positions, and scholarships. Teaching assistantships are awarded by the Graduate Studies Committee while research assistantships are funded by individual faculty grants. The number of teaching assistantships available each year is determined by the annual budget while the number of research assistantships depends on the funding of faculty extramural grants. Awarding of assistantships and scholarships is based on consideration of academic performance, program need, and where appropriate, financial need. Only full-time students (9 hours/semester) are eligible for assistantships.

Each Teaching and Research Assistantship carries an obligation to provide up to 20 hours/week of work. This is exclusive of work done for course credit or independent study and research. Although an assistantship is considered a half-time position, full-time students are expected to give full-time effort to graduate study and research in addition to fulfilling the obligations of their assistantship.

Outside employment of full-time, supported students is not permitted by the University. We recognize that doctoral study can cause both financial and personal strains, however, it is in everyone's best interest that when students feel unable to devote full time to their studies and assistantship obligations that they resign their assistantship and shift to part-time status, or seek a leave-of-absence. In general, students in good standing who temporarily resign their assistantship are reappointed when they return to full-time status. Some students may also prefer not to hold assistantships in the summer. Again, given that the student is in good standing, the student would be reappointed in the fall.

Assignment of assistantships to faculty members is made on recommendation of the Graduate Studies Committee, with consideration given to the wishes, qualifications, and skills of the students, together with faculty needs. Almost invariably, the student is assigned to the faculty member the student has selected as his/her research advisor. Students or faculty may request transfer of assistantships at any time for any reason. Such requests must be initiated through and are considered by the Associate Dean for Graduate Studies.

The Graduate Studies Committee attempts to fund students needing support for a period of 4 years or until their total doctoral enrollment exceeds 99 hours. However, renewal of assistantships depends upon the student's academic performance, performance as an assistant, and the availability of funds. Support beyond four years requires a special request to the Graduate Studies Committee and normally is approved only when it is clear that the student is making good progress and is nearing completion of the degree. By State regulations, TA or RA positions awarded to students who have exceeded the 99-hour limit may not include tuition scholarships. Students who accept assistantship positions after they have exceeded 99 doctoral hours must pay their own tuition and fees. Minimum enrollment for students in the long semesters is 9 credit hours.

### **Teaching Assistantships**

Teaching Assistants (TAs) are appointed expressly to contribute to the instructional activities of the School. TAs are obligated to participate in the TA pool for 10 hours/week. The remaining 10 hours are under the supervision of the research advisor and include various assignments as designated by the research advisor. Students are assigned from the TA Pool to assist in specific courses. These courses are typically large undergraduate classes, classes with associated laboratories or discussion sections, or classes requiring extensive office hours and student tutoring. TA assignments vary depending upon program need and the skills and experience of the student. The course instructor determines the specific responsibilities of students assigned to Pool courses. Students may be assigned limited direct teaching responsibilities under the supervision of the course instructor. Students who wish to have more extensive teaching experience including responsibility for full courses should contact the Associate Dean for Undergraduate Studies (Dr. Buhrmester.) Students assigned full courses are expected to devote 20 hours/week to class-related activities and are, therefore, not also assigned 10 hrs./week to their research advisor.

Students are notified by memo or e-mail of their TA Pool assignment before the start of each semester. Attempts are made to assign students in areas related to their interests. However, much of the need for TAs is in the undergraduate Psychology program so there may be occasions when students are assigned to TA a course outside the student's discipline. Students are provided sufficient guidance to perform well in these roles. Each semester one or more students are assigned to the "extra duty pool." Students in the extra duty pool are not assigned to specific courses, but are on call for 10 hours/week to proctor exams and handle clerical work related to courses. The Associate Dean for Undergraduate Studies supervises the extra duty pool and will directly contact students as needed.

When students receive their TA pool assignment, they should contact the faculty member to whom they are assigned. Any conflict regarding your TA responsibilities and the courses in which the student is enrolled need to be resolved quickly. In such an event, contact the Associate Dean for Graduate Studies.

### **Research Assistantships**

RAs are selected by and assigned to specific faculty-initiated extramural grants. Students appointed to Research Assistantships are not obligated to serve in the TA Pool. The specific assignments and responsibilities of RAs are decided by the grant's Principal Investigator but usually include participation in research as well as the clerical duties that support research.

### **TA and RA Salaries and Appointments**

The salary of TAs is set by the School. There are two levels of funding. Level I funding applies to all students prior to approval of their qualifying projects. Level II funding applies to students who have successfully completed their qualifying projects. Transfer from a Level I to Level II appointment occurs at the start of the semester following the student's completion of their qualifying projects. Currently, the pay differential is about 15%. Students receive annual salary increments in-line with the increments authorized for all UTD staff.

The salaries of RAs are set by the Principal Investigator of the grant to which the student is assigned. The salaries of RAs are equal to or exceed those of TAs. RAs also receive annual salary increments equal to the increments authorized for all UTD staff.

In addition to salary, TAs and RAs receive the Graduate Student Stipend (GSS) equivalent to full tuition and fees for 9 credits/semester (minimum enrollment in summer is typically 3-6 credits.)

In general, TA and RA appointments are for 12 months (September 1-August 31.) However, the university operates on a separate budget during the summer, so a summer TA appointment is not automatic should funding for the School fall short. Likewise, grants may expire, in which case funding for an RA positions would be terminated. Students supported on RA positions lost through termination of a grant are typically offered TA positions, assuming they have not exceeded 99 hours of doctoral study and are in good standing regarding progress toward the degree. However, the salary of students transferred to TA positions will be at the TA rate rather than at the rate the student earned as a RA.

Students in the combined M.S./Ph.D. or Au.D./Ph.D. programs are paid hourly rather than as TAs until the completion of their M.S. or Au.D. work. Students paid hourly are not eligible for the GSS. The specific assignment of students paid hourly is determined by the program head of the masters program in which the student is enrolled.

In order to conform to the State budget cycle, TAs are appointed from September 1 to January 15, from January 16 to May 31, and from June 1 to August 31. These appointment dates do not reflect the semester schedule, thus, appointment dates and work dates will not completely overlap. For example, students appointed for the fall semester (September 1-January 15) will begin work in mid-August and finish for the semester in Mid-December.

### **Semester Breaks**

The policy regarding student obligations over semester breaks are as follows: students appointed as TAs are responsible for working from 4 working days prior to the start of classes to the last day of final exams each semester. In the case of students assigned to courses in which the final exam occurs late in the exam period, students are required to work until grading is completed or the final grades are submitted to the Registrar. Any variation in this schedule must be approved by the student's research advisor, the instructor of the course for which the student is a TA, and the Program Head. RAs may be expected to follow the staff rather than academic calendar which results in shorter intersession breaks. You should check with your supervisor early regarding expectations during intersessions to avoid misunderstanding.

Students planning extended travel (beyond approved travel to professional meetings) which might interfere with their TA/RA duties must receive the approval of their program head. Do not make travel arrangements or purchase tickets until your absence has been approved.

### **Other Grants and Scholarships**

Students are strongly encouraged to apply for predoctoral grants and fellowships as well as private scholarships for which they may be eligible. Students awarded Federal predoctoral fellowships receive supplemental travel funds and other financial benefits from the School in recognition of their achievement. In no case will a student receive less income or GSS support than a TA, regardless of the terms of a Federal predoctoral award.

### **Travel Funds**

Funds are available to help defray the cost of travel to professional meetings. The amount varies by year. This year the amount is \$600. To be eligible for travel funds students must have a poster or presentation accepted at a professional meeting and must complete a form requesting travel funds (available from the program secretary). Students are encouraged to submit the form as soon as notification of acceptance is received.

**Before you make any travel plans or arrangements, be sure to talk with a Program Secretary. There are very rigid rules regarding reimbursement for travel and if you don't follow the rules, you will not be reimbursed for your expenses.** Funded student travel must be approved by the Graduate Studies Committee. Some professional meetings make available competitive travel scholarships for students. Students are encouraged to apply for these scholarships which may be used to supplement funds awarded by the school. Travel funds are available only for attendance at major national professional meetings.

### **Dissertation Support**

There are currently a small number of grants to support student dissertation research. Grants of up to \$1,000 may be made to help offset costs associated with conducting dissertation research. The funds are intended for items such as disposables, printing,

tests, and subject payment rather than for permanent equipment. Requests for support should be made through the Associate Dean for Graduate Studies and should include a budget. Funds are available for students only after the dissertation proposal has been approved by the faculty following the oral defense.

### **Student Offices and Study Areas**

Full-time doctoral students are eligible for office space or a carrel in a study area. However, space is severely limited and not all students can be accommodated. Students who do not anticipate regular office use for study or TA obligations should not request space. Please make your request through the program secretary. Study space is available on the Richardson campus and Callier-Dallas.

### **Computer and E-Mail Accounts**

Computer and email accounts are available to all students and computers. To open an account, students must complete paperwork available from Information Resources. All official business communicated via email can be sent only to a student's UTD email address. There are various school and university-wide mailings describing policies, procedure, deadlines, and changes in requirements which may affect you. In addition, we will post announcements regarding speakers, brown-bags, class changes, and scholarship and job opportunities. Be sure you check your UTD email regularly.

It is also important that you check your UTD Student Information System (SIS) accounts regularly. The occasional incorrect charge, mistake in financial aid, or inaccurate registration can be a real headache, if not caught.

### **Leave-of-Absence**

Students may request a leave-of-absence for personal or financial reasons or to complete a professional requirement such as a CFY. A brief memo to the Graduate Studies Committee indicating the reason for requesting leave and the expected date of return are sufficient. Leaves are normally granted for students in good standing for a period of up to one year. It may, however, be necessary to submit an application form to the university Admissions Office in order to be reinstated. Extensions beyond a year may also be granted, but require an annual request. If the Graduate Studies Committee turns down the request for an extension, reinstatement requires a new application which will undergo competitive review with new applicants. Granting of leave does not extend the 10-year limit for completing all requirements for the degree.

## **APPENDIX A**

## **Research Project Proposal**

The research project provides students the opportunity to demonstrate that they can design and implement an empirical investigation. All projects must have the prior approval of the Graduate Studies Committee based on its review of a project proposal submitted by the student. This 3 to 5 page proposal outlines the rationale and design of the study. It is evaluated by the Graduate Studies Committee in terms of the justification provided for the research questions posed and the integrity and utility of the data collected within the study.

The outline below is typical of traditional psychological experiments. The Graduate Studies Committee recognizes that some research (single-subject studies, clinical studies, neuroanatomical studies, etc.) will require modifications in the organization of the proposal.

This information is best presented to the committee by using the following format to structure the project proposal.

### **Introduction**

Rationale

Hypotheses

### **Methodology**

Design

Subjects

Instrumentation/Apparatus

Procedures

Methods of Analysis

Speculative Results

## **INTRODUCTION**

The introduction provides the reviewer the overall rationale for the project. The student must demonstrate that the research topic is important and that the specific questions to be studied are logical extensions of previous research. It should be structured to provide direct support for the specific hypotheses guiding the current project.

## **METHODOLOGY**

### **Design**

The discussion of the design details the overall organization of the project. What factors are serving as independent variables? Are they experimental or correlational in nature? Is the design factorial? Does it include both within and between subjects factors? Are some factors nested within others or are all factors crossed? Will blocking factors be used? What will serve as dependent variables?

### **Subjects**

In this section the student identifies those who will serve as the sample for the study. The reviewer will be interested in understanding the characteristics of the population of interest, how the sample is selected from the population, and how subjects are selected to the levels of the independent variables. The strategies used to block subjects on independent variables should be included.

### **Instruments/Apparatus**

Provide a description of the nature of the dependent variables and how they are to be operationalized. In the case of indirect measurement such as a personality test, this might include information regarding the reliability and validity of the instruments used and a description of the standardization samples upon which they were developed. With regard to physiological measurement such as response time, the student must include a description of the equipment used to acquire the data and how it is to be operated.

### **Procedures**

This section describes all the steps that will be followed in conducting the study, from beginning to end, in the order in which they occur. In other words, how the research design will be operationalized. Depending on the type of research being conducted, this section might include information on the experimentation of control procedures or testing conditions. This section should also include any assumptions made in the design of the study or limitations in the research protocol that might influence the interpretation of the results.

### **Methods of Analysis**

This section describes how the data will be analyzed in relationship to the research questions. In some cases data analysis entails little more than simple tabulation and description of the results. In other cases data may be analyzed using inferential statistics which will require students to discuss the specific techniques to be used, how they were chosen, what statistical tests are to be employed and how they will be judged.

## **SPECULATIVE RESULTS**

This study outlines several (perhaps three or four) ways the study might come out. One way to do that might be to present a series of figures showing a variety of possible patterns of results. For each plausible outcome the student should state briefly (two or three sentences) what the outcome would mean. That is, how would the student interpret each of the plausible outcomes of the study?

