



TEXAS TECH UNIVERSITY

Department of Psychological Sciences™

## **Experimental Psychology Programs Handbook**

Ph.D. in Experimental Psychology

M.A. in Experimental Psychology

Cognition & Cognitive Neuroscience Area

Human Factors Area

Social Psychology Area

Edition: **2020-2021**

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## Introduction

The Texas Tech University Experimental Psychology graduate programs are designed to provide a broad education in psychology, strong training in methodology, and particular expertise in cognition & cognitive neuroscience, human factors, or social psychology. The programs aim to prepare people for academic careers and for research positions in a variety of settings. The three areas function as one program within the department and encourage scholarship that cuts across area and program boundaries.

The Experimental Psychology faculty members are committed to providing the best possible graduate training in an environment in which students and faculty work together, particularly through ongoing, active collaboration in research. All areas utilize an apprenticeship model in which students work with faculty and become increasingly independent as their research skills develop. The policies and procedures described in this handbook are intended to reflect this model and the values that underlie it.

The mere completion of minimum requirements is not sufficient for success in an advanced degree program or for becoming a professional in the field of psychology. Unlike their undergraduate counterparts, graduate students are expected, as a matter of routine, to take the initiative in pursuing their own professional development. Students should actively seek out opportunities, for example, to read widely in the field; to attend colloquia, job talks, and brown bags; to initiate new research; to attend conferences and conventions and present research; and to apply for support for research and travel.

There is some variation in the time it takes students to complete their graduate programs, but a typical student starting with an undergraduate degree in psychology can expect that it will take approximately 1.5-2 years to finish a master's degree and 4-5 years to finish a doctoral degree. The program is designed for full-time students only. We recognize that most students need financial support that will involve part-time employment in some capacity while enrolled. In most cases, support is provided by the department. However, if the department cannot provide financial support, students seeking support elsewhere should find employment whenever possible in settings that complement the graduate program. Note, however, that international students on visas might be prohibited from being employed outside of the university.

If you have any questions about policies and procedures that are unanswered or unclear in this handbook, please consult with your advisor or the program director. Fellow students, faculty in other programs, department staff, and the Graduate School, to name a few, are not the most reliable sources of information about the graduate programs in Experimental Psychology. We are dedicated to facilitating your success in our graduate programs and beyond, and we hope that this handbook, in conjunction with the Department of Psychological Sciences Handbook and regular discussions with your advisor, will ensure smooth sailing through graduate school.

## Practical Issues

### Department & Program Structure

The Department of Psychological Sciences has graduate students in three graduate programs: Clinical Psychology, Counseling Psychology, and Experimental Psychology. Faculty members and graduate students are each associated with one of these programs. Within the Experimental Psychology program, there are three areas: Cognition & Cognitive Neuroscience, Human Factors, and Social Psychology (as such, faculty members and graduate students within the experimental program are each associated with one of these areas). The department also has an undergraduate program, which is serviced by faculty and graduate students from all programs and areas.

The department is overseen by a department chair, as well as an associate chair(s). Each of the three graduate programs and the undergraduate program has a program director. The department's Executive Committee ("EC") is typically made up of the chair, associate chair(s), and program directors. Sometimes, a program might have an assistant program director or might be led by two program co-directors. Within the experimental program, each area has an area head; area heads do not normally serve on the EC. The department chair usually has a council of designated graduate students who provide direct feedback on policy and other issues to the chair. Program directors and faculty members also routinely seek input and feedback from graduate students on issues that might affect the graduate students or their training.

Within the department, policies and decisions related to graduate students are hierarchical. Departmental policies apply to all graduate students in the department, and these policies are found in the department's Graduate Student Handbook. Similarly, policies and rules set at the department level by the chair, EC, or full faculty apply to all graduate students. Some policies and rules, however, might be specific to the experimental program or even to an area within the experimental program. Program policies apply to all graduate students in the program; area policies apply to all graduate students in that area (e.g., the Human Factors area has some very specific policies related to their accrediting body that apply to Human Factors students). Program-specific and area-specific policies are found in this handbook.

### Advisors

The permanent advisor is chosen by the student with the agreement of the advisor and is usually the faculty member who will chair the student's dissertation committee. Students must email the program director when they have changed advisors (and should Cc: the previous and new advisors). In the rare case in which a student's research advisor is not a member of any of the experimental programs, an academic advisor from one of the experimental programs will also be assigned.

Each semester, students should confer with their academic advisors to plan the next semester's schedule. Students should also keep their advisors up-to-date on all academic activities. Copies of all significant records pertaining to each student's program are kept in the student's file in the main psychology office. Students, their advisors, and the program director are responsible for keeping the file current.

Importantly, the Graduate School considers the program director to be the "advisor" of every graduate student in a program and is not usually aware of a faculty member's designation as a student's advisor. For most graduate school forms, a signature line indicating "advisor's signature" usually means the program director, whereas a signature line indicating "chair of thesis or dissertation committee" usually means the student's departmental advisor. The Graduate School considers the experimental program to be one program and does not recognize the three areas as distinct areas. Therefore, an area head's signature should never replace the program director's signature on any Graduate School forms. Likewise, your advisor cannot override graduate school, department, program, or area policies for you.

## Registration and Enrollment

Students should know that a primary issue regarding enrollment and credit hours is the accrual of doctoral credit hours subsidized by the state. Experimental Psychology students are allowed to accrue no more than 99 doctoral credit hours (see Department Handbook for details).

Definitions:

1. The term “all requirements” in this section means as follows:
  - a. The student has completed (including completing any incomplete grades) all required departmental and program course work, as well as any other courses included in the student’s “Program for the Doctoral Degree.”
  - b. The student has passed the qualifying exam and has been admitted to doctoral candidacy.
  - c. The student has a signed dissertation proposal.
2. “Successful dissertation defense” means the student has passed the oral defense. Further revisions of the dissertation document may (and typically are) required by the committee before the dissertation document is finally accepted by the committee. All revisions required by the committee at defense must be completed and approved by the committee prior to submission of the document to the Graduate School.
3. “Final acceptance” of the dissertation means approval of the document with any required revisions by both the committee and the Graduate School.

Students who have a signed dissertation proposal, have scheduled a defense date, and have completed all requirements except the defense or final acceptance of the dissertation need to register as follows:

1. Long semesters prior to and including the semester of dissertation defense -- the minimum enrollment is 6 credits each long semester (i.e., Fall, Spring).
2. Long semesters following successful dissertation defense but before final acceptance of the dissertation – the minimum enrollment is 3 dissertation credits (PSY 8000) each long semester.
3. Before final acceptance of the dissertation document by the Graduate School, the enrollment during the summer sessions (either SSI, SSII, or combined) is a minimum of 3 dissertation credit hours (PSY 8000). Students who defend during the summer should make sure that the minimum 2 hours total credits with each non-chair committee member is satisfied during or prior to summer sessions (see subsequent section entitled Research Coursework). Note: The experimental programs may impose enrollment requirements above this minimum.

The Graduate School requires that students who have completed all requirements including final acceptance of the dissertation should enroll for a minimum of one hour (typically of PSY 8000) through the semester of graduation.

Note: A student may petition the department’s Executive Committee to reduce enrollment requirements by emailing the program director and copying their advisor on this email. The petition should make clear the basis of the request, the student’s current academic situation (e.g., successfully defended dissertation proposal and currently collecting data), and the length of the request (e.g., Summer 1, Fall).

## Performance Requirements

In the experimental programs, a graduate student must earn a B- or better in every required course.

## **Course Withdrawals**

Students must obtain written permission from their advisor to withdraw from a course after the 12th class day of the semester. If necessary, additional credits (e.g., PSY 6000/7000) should be added to maintain full enrollment and full-time commitment to the program, and eligibility for fellowships and assistantships. If additional enrollment is not possible and the student's funding requires full-time enrollment, a memo requesting an exception to Graduate School minimum enrollment requirements should be submitted for signatures to the advisor and the program director, who will forward it to the Graduate School.

## **Second Year Project Timeline**

Ordinarily, students must complete the oral and written portions of their second-year project by the end of the second semester of their second year in the program. If a student has yet to complete the second-year project by the end of the second year (September 1), the Experimental faculty will recommend to the Graduate School that the student be placed on academic probation. If a student has yet to complete the second-year project by May of the third year, the Experimental faculty will recommend to the Graduate School that the student be dismissed from the program.

## **Recommended Timeline of Major Milestones**

In order to maintain adequate progress through the program and its degree requirements, the experimental faculty members recommend that graduate students keep the following suggested timeline in mind as they assess their timely progress through the program:

1. Prepare for the departmental presentation for your second-year project during the Fall semester of your 2nd year in the program. Be ready to present early in the Spring semester of your 2nd year in the program. Do not assume that presentations will occur at the very end of the Spring semester.
2. Complete the written paper for your second-year project and have it approved by two readers (or defend your formal thesis) during the Spring semester of your 2nd year in the program.
3. Pass your qualifying exam by the end of your 3rd year in the program.
4. Propose your dissertation by the end of your 4th year in the program.
5. Defend your dissertation by the end of your 5th year in the program.

## Master's Degree Talks (aka "2nd Year Talks")

The university allows two options for completing the master's degree requirements: the "formal thesis" option (aka "PSY 6000") and the "non-thesis" option (aka "PSY 7000"). Both options require an oral presentation of some form. Per current university and department policy, in both cases, the oral presentation itself is not graded or scored. Rather, the presentation serves to communicate the content of the master's research to the audience, and the quality of that research is graded or scored as part of the written document. Current department policy also requires an oral presentation of the master's research for students who transfer in a completed master's thesis from another university. Below are the options that graduate students in the experimental psychology program have for meeting the requirements of the master's degree; each option includes a method for students to meet the oral presentation requirement.

### Options for Completion

**Formal Thesis Option.** The formal thesis option (aka "PSY 6000") involves a thesis committee, a formal thesis proposal, a formal thesis defense, and a formal thesis document. In this case, the formal thesis defense meeting includes an oral presentation of the research conducted and associated findings, so this presentation serves as the oral presentation required for the master's degree. The presentation itself is not scored or graded. There is no specific timeline for when this defense must occur, but program policy (see other relevant sections of this handbook) indicates that all requirements for the thesis (i.e., successful defense) must be met by August of the student's second year in the program. As all formal thesis and dissertation defenses must be open to the university public, anyone who is not on the thesis committee, but wants to attend the defense, may do so.

**Non-Thesis Option.** The non-thesis option (aka "PSY 7000") involves a committee of two faculty readers, no proposal or defense meetings, and a less-formal written document. In this case, an oral presentation of the research project and its findings to the experimental program area (faculty and graduate students) serves as the oral presentation required for the master's degree. The presentation itself is not scored or graded. Every year, the experimental program director will schedule a session(s) of PSY 7000 talks early in the spring semester. Graduate students should expect to give their PSY 7000 talk early in the spring semester of their second year in the program. Program policy (see other relevant sections of this handbook) indicates that all requirements for the 7000 project (i.e., the oral presentation and successful completion of the 7000 paper) must be met by August of the student's second year in the program. Guests (e.g., friends or family of the speakers; faculty or graduate students from other programs in the department or from other departments) are also welcome to attend.

**Transferred Master's Thesis.** Current department policy requires a student who transfers in a master's degree from another university to give an oral presentation over the research the student conducted for that degree. An experimental graduate student who transfers in a master's degree from another university will meet the presentation requirement by giving an oral presentation about the research they conducted for their master's degree to the experimental program (faculty and graduate students) as part of the next session of the program's PSY 7000 talks. The presentation is not scored or graded. Every year, the experimental program director will schedule a session(s) of PSY 7000 talks early in the spring semester. A student who has transferred in a master's degree should complete their presentation in the spring semester of their first year in the program. Guests (e.g., friends or family of the speakers; faculty or graduate students from other programs in the department or from other departments) are welcome to attend.

### Scheduling of Spoken Sessions

The experimental program director will schedule the talk session(s) each year (i.e., for those talks fulfilling the non-thesis and transferred thesis options) and will moderate each session (i.e., introduce the speakers and keep time).

### **Cognition & Cognitive Neuroscience Area Requirements for the Master's Degree (M.A.)**

Enrollment and registration requirements (see the Registration and Enrollment section of this handbook) apply to master's students. Unless a leave of absence is granted by the Experimental Psychology faculty, students are expected to enroll in a combined minimum of six hours across the two summer sessions.

A formal thesis is optional. When these requirements are fulfilled, students should request by email that the program director send a statement to the Graduate School indicating that the comprehensive examination (second-year project) has been passed. The request should be timed to allow the program director's notification to reach the Graduate School before the deadline for that semester, which is typically about six weeks before graduation.

#### M.A. Curriculum

##### Statistics (8 hours)

PSY 5480 Experimental Design

PSY 5447 Advanced Correlational Methods and Factor Analysis

##### Departmental Core (6 hours)

Two courses that fulfill any two of the cognitive, social, or applied core requirements for the Cognition & Cognitive Neuroscience doctoral degree.

##### Experimental/Statistics Electives (12 hours)

4 additional courses that are either (a) courses taught by experimental faculty, or (b) statistics courses.

##### Free Electives (6 hours)

2 graduate level courses in any area of psychology or any other field.

##### Research (6 hours)

A minimum of 6 hours of enrollment in PSY 6000 if pursuing the formal thesis option, or PSY 7000 if pursuing the non-thesis option.

Even after meeting the PSY 6000/7000 requirement, students must be continuously involved in research.



## Cognition & Cognitive Neuroscience Area Requirements for the Doctoral Degree (Ph.D.)

### Required Coursework

#### Statistics (3 graduate-level courses)

Basic graduate statistics courses (both required)

PSY 5480 Experimental Design

PSY 5447 Advanced Correlational Methods and Factor Analysis

Advanced/specialized course

Any advanced statistics course taught in the Department of Psychological Sciences.

#### Departmental Core (3 courses)

Cognitive Bases of Behavior

Take 1 cognitive or cognitive-neuroscience seminar taught by a Cognition & Cognitive Neuroscience faculty member.

Social Bases of Behavior

Take 1 social psychology seminar taught by a Social Psychology faculty member.

Applications

Take 1 human factors seminar taught by a Human Factors faculty member.

#### Specialization Courses (4 courses)

In collaboration with their advisors, each student will identify any four courses that serve the student's goal of becoming a cognitive psychologist. These courses will typically be Experimental Psychology courses, but they can be from any area of psychology or any other field.

#### Experimental Electives (2 courses)

An additional 2 courses taught by Experimental Psychology faculty, which may include further work in the specialization

#### Colloquium in the Teaching of Psychology

Students must take PSY 5101 (Colloquium in the Teaching of Psychology) before their second year in the program, unless they can demonstrate prior completion of an equivalent course on teaching.

**Note: Experimental graduate students are no longer required to fulfill the department's Biological Bases of Behavior core category, but they may use such courses as specialization or elective courses, as appropriate. Statistics & Methods Courses CANNOT count as Core Courses, even if taught by an experimental faculty member. Statistics & Methods Courses CAN count as Specialization Courses, regardless of the instructor. Statistics & Methods Courses CAN count as Experimental Electives, ONLY if taught by an experimental faculty member.**

#### Research Coursework (i.e., PSY 6000/7000/8000)

15+ credits of PSY 6000/7000

12+ credits of PSY 8000

### Research Requirements

#### Pre-Dissertation Research

In addition to organized coursework, continuous involvement in research is expected. This will include registering for (a) a minimum of 15 hours of enrollment in PSY 6000/7000 before graduation, and (b) enrolling in PSY 6000/7000 for 3 credit hours during each long semester and one summer term each year.

There are two potential exceptions to enrolling for 3 credit hours of PSY 6000/7000 each semester.

1. When organized courses total 7 credit hours (e.g., a 4-credit statistics course and a 3-credit content course) in a given semester, it is permissible for the student to enroll in 2 credits of 7000 instead of 3 credits.

2. Sometimes course schedules may result in three infrequently-offered classes being offered in the same semester. In rare circumstances, a student may register for three 3-credit organized courses and no PSY 6000/7000 credits in a semester. Students who wish to do this must discuss it with their advisor and obtain written permission (an email record is fine).

Students should only undertake these options if they can do so with no decrease to their research productivity. A reduction in 6000/7000 credit hours does not reduce the expected amount of time or effort the student should spend on research, which should always be a primary focus.

#### Dissertation Research

A minimum of 12 hours of enrollment in PSY 8000 (only 12 will be applied to the degree audit). Continuous enrollment of at least 3 hours of PSY 8000 with the dissertation chair beginning at least in the semester in which the dissertation is proposed. Students are required to sign up for a minimum of 2 credits with every other committee member during the course of the dissertation, normally in the semesters of proposal and defense. A student may not begin to enroll in Psychology 8000 until after passing qualifying examination.

### **Human Factors Area Requirements for the Master's Degree (M.A.)**

Enrollment and registration requirements (see the Registration and Enrollment section of this handbook) apply to master's students. Unless a leave of absence is granted by the Experimental Psychology faculty, students are expected to enroll in a combined minimum of six hours across the two summer sessions.

A formal thesis is optional. When these requirements are fulfilled, students should request by email that the program director send a statement to the Graduate School indicating that the comprehensive examination (second-year project) has been passed. The request should be timed to allow the program director's notification to reach the Graduate School before the deadline for that semester, which is typically about six weeks before graduation.

#### M.A. Curriculum:

##### Statistics (8 hours)

- PSY 5480 Experimental Design (required)
- PSY 5447 Advanced Correlational Methods and Factor Analysis (required)

##### Departmental Core (6 hours)

###### Applications

- PSY 5370: Human Factors Psychology (required)

###### Cognitive OR Social

One course from either the cognitive or social options below:

###### Cognitive:

- PSY 5356: Cognition & Cognitive Neuroscience
- PSY 5353: Cognitive Neuroscience

###### Social:

- PSY 5328: Seminar in Social Psychology
- PSY 5300: Attitudes and Attitude Change
- PSY 5335: Group Processes and Intergroup Relations

##### Experimental/Statistics Electives (12 hours)

- PSY 5354: Perception and its Applications (required)
- PSY 5372: Human Factors Methodology (required)
- PSY 5373: Cognitive Ergonomics (required)
- Plus one more 3-credit course that is (a) taught by Experimental faculty and (b) the student and advisor think serve the student's goal of becoming a human factors psychologist. Common HF/E options are listed below. Alternatively, students can take an additional statistics course (which does not have to be taught by Experimental faculty).
  - PSY 5001: Neuro-Ergonomics
  - PSY 5003: Internship
  - PSY 5379: Human-Computer Interaction

##### Industrial Engineering (6 hours)

- IE 5309: Human Factors in Engineering and Design (required)
- One more IE course

##### Research (6 hours)

A minimum of 6 hours of enrollment in PSY 6000 if pursuing the formal thesis option, or PSY 7000 if pursuing the non-thesis option.

Even after meeting the PSY 6000/7000 requirement, students must be continuously involved in research.

Research experience is considered of primary importance and students are expected to engage in research continuously throughout the year. To develop sufficient research acumen, students should aim to conduct as much research as possible during their graduate studies.

The human factors area utilizes an apprenticeship model in which students become involved in their advisor's ongoing research. The research typically focuses on theoretical issues in Experimental Psychology that have implications for human factors applications.

#### Other MA Requirements:

The following are other skills that students in the human factors area are required to develop. As noted below, opportunities to develop these skills can stem from topical courses, research experiences, or other program-related activities. Students are also free to seek out other opportunities to develop these skills.

#### Quantitative and Computer Skills

- Students must acquire quantitative skills that are appropriate to their course of study. This may be achieved in various ways such as coursework, research experiences, and independent study. Examples include statistics, linear algebra, trigonometry, calculus, or computational modeling.
  - Mastery of mathematics through calculus is strongly recommended.
- Students also must acquire computer skills that are appropriate to their course of study. This may be achieved in various ways such as coursework, research experiences, and independent study. Examples include statistical software packages (SPSS, SAS), prototyping and simulation tools, MATLAB, JAVA, Visual Basic, and C++.
  - Mastery of a higher-level programming language is strongly recommended.

#### Communication Skills

- Students must develop their oral and written communication skills. This is achieved by the oral and written requirements for the MA thesis or Second-Year Project requirement for all MA and PhD students and by the oral and written requirements for the dissertation for PhD students. In addition, in the weekly Human Factors Chat, all students are responsible for one time-period per year.

#### Teamwork Experience

- Students are exposed to multidisciplinary team experiences in various ways such as coursework (Human Factors, Human Factors Methodology, Human-Computer Interaction), the HFES TTU Student Chapter, and practical experiences such as internships. Examples include collaborative class assignments and projects, feedback from fellow students on class presentations, and students working together on practical problems.

## Human Factors Area Requirements for the Doctoral Degree (Ph.D.)

### Required Coursework

#### Statistics (3 graduate-level courses)

Basic graduate statistics courses (both required)

PSY 5480 Experimental Design

PSY 5447 Advanced Correlational Methods and Factor Analysis

Advanced/specialized course

Any advanced statistics course taught in the Department of Psychological Sciences.

#### Departmental Core (9 hours)

Applications

PSY 5370: Human Factors Psychology (required)

Cognitive (choose one)

PSY 5356: Cognition & Cognitive Neuroscience

PSY 5353: Cognitive Neuroscience

Social (choose one)

PSY 5328: Seminar in Social Psychology

PSY 5330: Attitudes and Attitude Change

PSY 5335: Group Processes and Intergroup Relations

#### Specialization (18 hours)

- PSY 5372: Human Factors Methodology (required)
- IE 5309: Human Factors in Engineering and Design (required)
- One more IE course
- Plus three more 3-credit courses that the student and advisor think serve the student's goal of becoming a human factors psychologist. Common HF/E options are listed below. Students often also take additional statistics courses.
  - PSY 5001: Neuro-Ergonomics
  - PSY 5003: Internship
  - PSY 5379: Human-Computer Interaction
  - ENGL 5388: User Experience Research
  - ENGL 5377: User-Centered Design

#### Experimental Electives (6 hours)

- PSY 5354: Seminar in Perception: Theory and Applications (required)
- PSY 5373: Cognitive Ergonomics (required)

#### Industrial Engineering (6 hours)

- IE 5309: Human Factors in Engineering and Design (required)
- One more IE course

#### Colloquium in the Teaching of Psychology (1 hour)

Students must take PSY 5101 (Colloquium in the Teaching of Psychology) before their second year in the program, unless they can demonstrate prior completion of an equivalent course on teaching.

#### Research Coursework (i.e., PSY 6000/7000/8000)

15+ credits of PSY 6000/7000

12+ credits of PSY 8000

## Research Requirements

### Pre-Dissertation Research

In addition to organized coursework, continuous involvement in research is expected. This will include registering for (a) a minimum of 15 hours of enrollment in PSY 6000/7000 before graduation, and (b) enrolling in PSY 6000/7000 for 3 credit hours during each long semester and one summer term each year.

There are two potential exceptions to enrolling for 3 credit hours of PSY 6000/7000 each semester.

1. When organized courses total 7 credit hours (e.g., a 4-credit statistics course and a 3-credit content course) in a given semester, it is permissible for the student to enroll in 2 credits of 7000 instead of 3 credits.
2. Sometimes course schedules may result in three infrequently-offered classes being offered in the same semester. In rare circumstances, a student may register for three 3-credit organized courses and no PSY 6000/7000 credits in a semester. Students who wish to do this must discuss it with their advisor and obtain written permission (an email record is fine).

Students should only undertake these options if they can do so with no decrease to their research productivity. A reduction in 6000/7000 credit hours does not reduce the expected amount of time or effort the student should spend on research, which should always be a primary focus.

### Dissertation Research

A minimum of 12 hours of enrollment in PSY 8000 (only 12 will be applied to the degree audit). Continuous enrollment of at least 3 hours of PSY 8000 with the dissertation chair beginning at least in the semester in which the dissertation is proposed. Students are required to sign up for a minimum of 2 credits with every other committee member during the course of the dissertation, normally in the semesters of proposal and defense. A student may not begin to enroll in Psychology 8000 until after passing qualifying examination.

Research experience is considered of primary importance and students are expected to engage in research continuously throughout the year. To develop sufficient research acumen, students should aim to conduct as much research as possible during their graduate studies.

The human factors area utilizes an apprenticeship model in which students become involved in their advisor's ongoing research. The research typically focuses on theoretical issues in Experimental Psychology that have implications for human factors applications.

### Other PhD Requirements:

The following are other skills that students in the human factors area are required to develop. As noted below, opportunities to develop these skills can stem from topical courses, research experiences, or other program-related activities. Students are also free to seek out other opportunities to develop these skills.

### Quantitative and Computer Skills

- Students must acquire quantitative skills that are appropriate to their course of study. This may be achieved in various ways such as coursework, research experiences, and independent study. Examples include statistics, linear algebra, trigonometry, calculus, or computational modeling.
  - Mastery of mathematics through calculus is strongly recommended.
- Students also must acquire computer skills that are appropriate to their course of study. This may be achieved in various ways such as coursework, research experiences, and independent study. Examples include statistical software packages (SPSS, SAS), prototyping and simulation tools, MATLAB, JAVA, Visual Basic, and C++.
  - Mastery of a higher-level programming language is strongly recommended.

#### Communication Skills

- Students must develop their oral and written communication skills. This is achieved by the oral and written requirements for the MA thesis or Second-Year Project requirement for all MA and PhD students and by the oral and written requirements for the dissertation for PhD students. In addition, in the weekly Human Factors Chat, all students are responsible for one time-period per year.

#### Teamwork Experience

- Students are exposed to multidisciplinary team experiences in various ways such as coursework (Human Factors, Human Factors Methodology, Human-Computer Interaction), the HFES TTU Student Chapter, and practical experiences such as internships. Examples include collaborative class assignments and projects, feedback from fellow students on class presentations, and students working together on practical problems.

**Note: Experimental graduate students are no longer required to fulfill the department's Biological Bases of Behavior core category.**

### **Social Psychology Area Requirements for the Master's Degree (M.A.)**

Enrollment and registration requirements (see the Registration and Enrollment section of this handbook) apply to master's students. Unless a leave of absence is granted by the Experimental Psychology faculty, students are expected to enroll in a combined minimum of six hours across the two summer sessions.

A formal thesis is optional. When these requirements are fulfilled, students should request by email that the program director send a statement to the Graduate School indicating that the comprehensive examination (second-year project) has been passed. The request should be timed to allow the program director's notification to reach the Graduate School before the deadline for that semester, which is typically about six weeks before graduation.

#### M.A. Curriculum

##### Statistics (8 hours)

PSY 5480 Experimental Design

PSY 5447 Advanced Correlational Methods and Factor Analysis

##### Departmental Core (6 hours)

Two courses that fulfill any two of the cognitive, social, or applied core requirements for the Social Psychology doctoral degree.

##### Experimental/Statistics Electives (12 hours)

4 additional courses that are either (a) courses taught by experimental faculty, or (b) statistics courses.

##### Free Electives (6 hours)

2 graduate level courses in any area of psychology or any other field.

##### Research (6 hours)

A minimum of 6 hours of enrollment in PSY 6000 if pursuing the formal thesis option, or PSY 7000 if pursuing the non-thesis option.

Even after meeting the PSY 6000/7000 requirement, students must be continuously involved in research.



## Social Psychology Area Requirements for the Doctoral Degree (Ph.D.)

### Required Coursework

#### Statistics (3 graduate-level courses)

Basic graduate statistics courses (both required)

PSY 5480 Experimental Design

PSY 5447 Advanced Correlational Methods and Factor Analysis

Advanced/specialized course

Any advanced statistics course taught in the Department of Psychological Sciences.

#### Departmental Core (3 courses)

Cognitive Bases of Behavior

Take 1 cognitive or cognitive-neuroscience seminar taught by a Cognition & Cognitive Neuroscience faculty member.

Social Bases of Behavior

Take 1 social psychology seminar taught by a Social Psychology faculty member.

Applications

Take 1 human factors seminar taught by a Human Factors faculty member.

#### Specialization Courses (4 courses)

In collaboration with their advisors, each student will identify any four courses that serve the student's goal of becoming a social psychologist. These courses will typically be Experimental Psychology courses, but they can be from any area of psychology or any other field.

#### Experimental Electives (2 courses)

An additional 2 courses taught by Experimental Psychology faculty, which may include further work in the specialization

#### Colloquium in the Teaching of Psychology

Students must take PSY 5101 (Colloquium in the Teaching of Psychology) before their second year in the program, unless they can demonstrate prior completion of an equivalent course on teaching.

**Note: Experimental graduate students are no longer required to fulfill the department's Biological Bases of Behavior core category, but they may use such courses as specialization or elective courses, as appropriate. Statistics & Methods Courses CANNOT count as Core Courses, even if taught by an experimental faculty member. Statistics & Methods Courses CAN count as Specialization Courses, regardless of the instructor. Statistics & Methods Courses CAN count as Experimental Electives, ONLY if taught by an experimental faculty member.**

#### Research Coursework (i.e., PSY 6000/7000/8000)

15+ credits of PSY 6000/7000

12+ credits of PSY 8000

### Research Requirements

#### Pre-Dissertation Research

In addition to organized coursework, continuous involvement in research is expected. This will include registering for (a) a minimum of 15 hours of enrollment in PSY 6000/7000 before graduation, and (b) enrolling in PSY 6000/7000 for 3 credit hours during each long semester and one summer term each year.

There are two potential exceptions to enrolling for 3 credit hours of PSY 6000/7000 each semester.

1. When organized courses total 7 credit hours (e.g., a 4-credit statistics course and a 3-credit content course) in a given semester, it is permissible for the student to enroll in 2 credits of 7000 instead of 3 credits.

2. Sometimes course schedules may result in three infrequently-offered classes being offered in the same semester. In rare circumstances, a student may register for three 3-credit organized courses and no PSY 6000/7000 credits in a semester. Students who wish to do this must discuss it with their advisor and obtain written permission (an email record is fine).

Students should only undertake these options if they can do so with no decrease to their research productivity. A reduction in 6000/7000 credit hours does not reduce the expected amount of time or effort the student should spend on research, which should always be a primary focus.

#### Dissertation Research

A minimum of 12 hours of enrollment in PSY 8000 (only 12 will be applied to the degree audit). Continuous enrollment of at least 3 hours of PSY 8000 with the dissertation chair beginning at least in the semester in which the dissertation is proposed. Students are required to sign up for a minimum of 2 credits with every other committee member during the course of the dissertation, normally in the semesters of proposal and defense. A student may not begin to enroll in Psychology 8000 until after passing qualifying examination.

## Experimental Psychology Program Internship Policies

### Reduced Enrollment Requirements

Experimental graduate students who wish to receive a course credit (enrollment) reduction while completing an internship must follow the guidelines below. Failure to follow these guidelines will mean that the student will not receive a course credit reduction while on internship and could lead to other negative consequences deemed appropriate by their faculty supervisor and the Experimental Program Director, with consultation from the Experimental faculty.

**In order for an Experimental Graduate Student to complete an internship *and* receive a course credit (enrollment) reduction, the student must:**

1. **Get approval from their faculty supervisor (i.e., Ph.D. or M.A. advisor).** The faculty supervisor will use the definition of an internship (provided below) to determine if the internship is acceptable and will count for the course credit reduction.
 

**Note:** If the faculty supervisor decides that the internship does not meet the definition of an internship provided below, then the student can petition the Experimental Director to form a three-person ad hoc committee (which will include the student's faculty supervisor, the area head of the student's area [e.g., the Human Factors area head], and the Experimental Director). This committee will evaluate the internship opportunity and vote if they deem it to be acceptable for reduced enrollment. Two of the three members must approve in order for the student to receive reduced enrollment. If the student's supervisor is the Experimental Director or an area head, then an area head of one of the other programs (e.g., Social or Cognition and Cognitive Neuroscience) will be added to the committee.
2. **Arrange for the internship site supervisor to provide the faculty supervisor with an evaluation of the student's performance after the internship is completed.** This evaluation should be a formal, written, summative evaluation.
3. **Provide an oral presentation (e.g., at the student's area brown bag or chat group) or written evaluation of their internship experience.** The presentation or paper should include a summary of what the student did and learned during the internship.
4. **Sign up for 4 credit hours for internships that occur during Fall or Spring Semesters and 3 credit hours during the summer semester (1 hour in summer I and 2 hours in summer II, or vice versa).** Students who want to get specific course credit for their internship will need to sign up for PSY 5003 with their faculty supervisor (1 credit hour in 5003 is possible each semester, the rest should be in 6000/7000/8000 credits). Students who do not want specific course credit for their internship should sign up for 6000/7000/8000 credits with their faculty supervisor. Students who have passed their dissertation defense or are in the semester in which they will defend their dissertation, will only need to sign up for 1 credit of 8000 with their faculty supervisor.

### Definition of an Internship

This definition is to be used by the faculty supervisors to determine if the student's internship meets the requirements to be counted as an internship and the student can receive a course credit reduction.

1. The internship experience must involve the student gaining or applying knowledge, skills, or abilities that are germane to their current graduate program in the Department of Psychological Sciences (and to their area of concentration within the Experimental Psychology program).
2. The knowledge, skills, or abilities learned must be transferable to other employment settings.
3. The internship experience is full-time, has a defined beginning and end, and involves a job description with desired or required qualifications.

4. There is on-site supervision by an expert in the field of the internship experience who has educational or professional background in that field.
5. The on-site supervisor regularly provides the intern feedback (formal or informal) and will provide the intern's major advisor formal summative feedback at the end of the internship.
6. There are resources, equipment, and facilities provided by the host employer that support the student's learning.

### **Qualifying Examination**

To be eligible to take the qualifying examination, students must have completed their second-year project (or thesis) including both the oral and written requirements. They should also have completed all of the coursework in their specialization.

The doctoral qualifying examination will consist of an essay exam of at least six hours duration. It will typically be constructed and graded by at least three faculty members selected by the faculty of the student's program. The examination will be constructed to allow the student some degree of freedom in selecting which questions to answer from among a set of questions presented on the examination. The examination requires a synthesis and application of knowledge acquired during the course of study for the doctoral degree; consequently, satisfactory performance in course work does not necessarily guarantee successful performance on the qualifying examination.

Qualifying examinations are ordinarily given in early fall and late spring (September and May). Well before the proposed date of the qualifying examination, students should notify the program director using the Qualifying Exam Checklist, which can be obtained from the program director. The student's doctoral degree plan should be revised at this time to reflect the courses that were actually taken and the current dissertation committee. Forms for (a) adding and deleting courses on the degree plan and (b) changing committee membership are available from the Graduate School's website. Once the program director has verified the relevant items on the checklist, the student will be given permission to proceed with the examination or informed of any remaining requirements.

Following the exam, the chair of the qualifying exam committee will complete the Qualifying Exam Results form and put it in the student's department file. The chair will also provide a copy to the program director, who will email it to the Graduate School.

Passing the qualifying exam is required for admission to candidacy by the Graduate School. Other requirements for admission to candidacy are given in the graduate catalog.

## Qualifying Examination in Cognition & Cognitive Neuroscience

For students in the Cognition & Cognitive Neuroscience area, there are two options for completing the qualifying examination: (1) a written literature-review exam or (2) a two-day timed exam.

For either option, the student and the student's Cognition & Cognitive Neuroscience faculty mentor will jointly select an examination committee of three total members, at least two of whom must be members of the Cognition & Cognitive Neuroscience faculty. Each member of a student's examination committee should speak to the student to give the student a sense of the breadth of coverage and subject matter to be addressed by that faculty member on the examination. Members may wish to give the student a specific reading list to include in their exam.

The student, with consent of their faculty mentor, will choose one of the following exam types. The student must take the exam by the end of the semester following the formal establishment of the examination committee. A single petition for an extension can be submitted to the committee for approval by majority vote. Extensions will only be granted for delays due to atypical circumstances outside of the student's control, not including delays due to teaching, service, or research workload. Students who entered the program prior to Fall 2016 are exempt from the two-semester rule, if they select option 2.

### Option 1: Literature Review Exam

- a. The student, with advice from their faculty mentor, will develop a topic for the literature review that integrates across at least three research areas in Cognition & Cognitive Neuroscience. The literature review will cover the current knowledge in the topic area(s) by integrating across important study results, methods, and theories. The review should not simply be a set of summaries or critiques of a list of papers, but rather a novel synthesis of the current state of knowledge in the literature covered by the topic. Examples of appropriate literature reviews can be found in *Psychological Review*, *Annual Review of Psychology or Neuroscience*, and *Nature Reviews Neuroscience*. The student will write a brief prospectus on this proposed topic, the research areas covered and how they will be integrated, and an anticipated reference list. They will schedule a one hour meeting with the qualifying exam committee to present the prospectus and receive feedback about the proposed area and expectations of the committee in terms of content. The prospectus must be sent to all members of the committee one week prior to the scheduled meeting.
- b. The student will complete a literature review paper based on the approved prospectus, taking into account feedback from the committee. The student will be allowed to seek comments on a preliminary version of their literature review with their faculty mentor only one time. The maximum length of the review (excluding title page, table of contents, abstract, references, figures, and/or tables) is 60 pages (double-spaced, 12 point Arial or Times New Roman font, 1 inch margins, and APA-style headings, citations, and references). The primary scoring consideration will be whether the review comprehensively reflects the state of knowledge in the topic area as opposed to the number of pages, but 35 pages should be considered an absolute minimum.
- c. The student will complete an oral defense of the literature review and the general content domains covered by the literature review. This oral defense will be scheduled for no longer than 90 minutes. In the first 20-30 minutes, the student will present their literature review. In the second 30 minutes, committee members will ask questions about the review. In the final 30 minutes, the committee will discuss the merits of the review and deliver the grades for both sections. The completed literature review must be sent to all members of the committee two weeks prior to the defense.

Grading: Each committee member will provide a grade of Pass, Marginal Pass, Marginal Fail, and Fail for the written and oral components of the exam. Students who receive at least a grade of Marginal Pass for both the oral and written section will pass the overall exam.

If a student receives two Marginal Fails on any section, the committee will discuss the best way to test the student's knowledge of the failed material, which may include minor edits to the document or in-person discussion of material with any number of committee members. If the student receives more than two Marginal Fails or any number of Fails, they will be given one opportunity to redo the section in a resubmitted literature review or a second oral presentation. Students must wait at least one semester to redo a failed section and not more than twelve months.

### Option 2: Timed Written Exam

The timed written examination consists of two parts. The first part of the examination will consist of two sections on cognitive psychology contributed by the cognitive faculty on the committee. All students taking the examination from a particular committee will receive the same set of questions. The second part of the examination will consist of two other sections for each student as determined by each student's committee.

Each section should be constructed in such a manner as to allow the student choices among questions or options appropriate for the allowed time period, with an indication of which questions, if any, carry more weight. If appropriate, some suggestion of the time to spend on each question will be provided. The exam will be administered over two days, in four three- hour blocks. This time frame can be modified through approval of the full committee and the director of the experimental program, given appropriate justification.

*Grading:* Committee members will grade their own sections. The grade options for each section will be Pass, Marginal Pass, Marginal Fail, and Fail. At their discretion, committee members may confer with other committee members before assigning a grade.

Students who receive at least a grade of Marginal Pass for each section will pass the overall exam. For up to any two (but not more) sections on which the student receives a Marginal Fail, or if the student receives one Marginal Fail and one Fail, the committee as a whole will determine an appropriate form of further inquiry to be certain of the student's knowledge of those areas, and no grade for the overall exam will be submitted until that inquiry (expeditiously conducted) is concluded and a final determination of the grade for the sections in question are determined. On the other hand, students receiving a Fail grade on two or more sections, or three or more Marginal Fails, will automatically fail the overall exam. A student who does not pass the qualifying exam will be permitted to retake the Fail and Marginal Fail sections once after a time lapse of four months but not more than twelve months, during a regularly scheduled qualifying exam. The student will need a grade of Pass on all retaken sections in order to pass the exam as a whole.

**Preparing for your qualifying exam and completing the actual exam are not acceptable excuses to avoid research, miss classes, complete your assistantship duties (e.g., teaching a class), or miss any other department / university duty. If such a conflict is seemingly unavoidable, the chair of your exam committee can work with the affected entities (e.g., your teaching supervisor) to find a mutually agreeable solution to the conflict.**

## Qualifying Examination in Human Factors

Successful completion of the qualifying examination in Human Factors Psychology documents that the student has 1) mastered the foundations of the field, and 2) become an expert in one of the field's identifiable sub-specialties. Ordinarily, the qualifying examination can be taken three times per year, during the last week of September, the last week in January, or the last week in May. The exact dates will be determined by the HF faculty. The qualifying examination has three sections.

### Sections.

Section 1. Fundamentals of Human Factors. This section is a written test of the student's knowledge of the foundations of Human Factors Psychology. It examines whether the student has mastered the fundamentals that every human factors psychologists should know.

Section 2. Research Specialty Area. This section is a written test of students' knowledge in their area of expertise. It assesses whether students have attained a sufficient degree of expertise in their chosen specialty area.

Section 3. Applying Knowledge from the Specialty Area. This is a paper in which the student demonstrates how knowledge from the specialty area can be used to address an applied problem. The problem must be defined narrowly, and must relate to the student's chosen area of expertise.

### Grading.

1. Each faculty member will grade the set of questions the student contributed, on the following 5-point scale: 4 = above average pass, 3 = average pass, 2 = marginal pass, 1 = marginal fail, 0 = definite fail.
2. After all faculty members have completed their grading, they will meet to discuss the results.
3. To pass the qualifying examination, the student must pass sections 1, 2, and 3.
4. To pass section 1, the student must pass all subsections (i.e., perception, human factors, human factors methods, and cognitive ergonomics).
  - a. If the student does not pass two or more of the subsections of Section 1, the student must retake section 1 in its entirety after waiting four months, at the next regularly scheduled offering of the exam.
  - b. If the student does not pass one of the subsections of Section 1, the student must complete remedial work which, at the committee's discretion, could be open book, closed book, or both. The exact nature of the remedial work will take into account the strengths and weaknesses of the particular student as demonstrated on the original examination. Thus, students may differ in the format and nature of remedial work.
5. The student must pass each part of the remediation in order to pass qualifying examinations. If the student fails any part of the remediation, the student must retake the failed section in its entirety after waiting four months, at its next regularly scheduled offering. If the student fails at this point, the student will be considered as having failed qualifying examinations for the second time and will not be permitted to continue in the program.



## Qualifying Examination in Social Psychology

The purpose of the examination is to allow doctoral students to demonstrate a comprehensive knowledge of the field of social psychology, to show an ability to deal with issues raised by the theory, data, and methods of the field, and to bridge this foundational knowledge with specialized substantive interests. The Graduate School requires that the qualification exam be completed within one year of completing the coursework listed in the doctoral degree plan. Student candidates will identify three social area faculty to serve as members of their qualifying exam committee. First, a bibliography will be provided to the student candidate that specifies 20 articles/readings that the Experimental-Social faculty consider an essential foundation of a comprehensive survey of the field, as represented in this department. These 20 core readings will be included in every student's bibliography. Next, the student candidate will populate the bibliography with at least 50 additional items that are relevant to the student's specialized and substantive areas of interests. After distribution of this bibliography to the qualifying exam committee, members will have two weeks from the date of receipt to populate the bibliography with any additional relevant readings that they feel will supplement important areas of knowledge, related to either foundational or specialized content. The final bibliography (~80-100 items) must be approved by all committee members.

Written Exam and Grading. Students will schedule the written portion of the qualifying exam at their discretion with the chair of the qualifying exam committee (typically their academic advisor). The written portion of the qualifying examination is administered over four consecutive days. Exams will be distributed at 9am on a date chosen by the student/advisor. All exams will be due by 5pm on the fourth day after the exam is released to the student. Students are given eight questions, designed by the current social faculty, and must select seven to answer, with a maximum of three, single-spaced typed pages allowed per response (not including corresponding references). Students may complete their exam in any location they see fit and are not restricted to a specific classroom or examination area. Any form of collaboration with anyone is absolutely and strictly prohibited.

Each question will be graded by two committee members, one of whom was the author of the question, using the 3-point scale below. Scoring is as follows: 2, honors; 1, pass; 0, fail. To pass the exam, students must receive no more than four "Fails" total across all 14 scores. Students who receive 5 or more "Fail" scores and, thus, fail their first attempt at the written exam will be automatically recommended for probation with the Graduate School and will not be allowed to proceed with the oral defense portion of the qualifying examination. The Graduate School requires students wait a minimum of 4 months (but not more than 12 months) before a second attempt at the written portion of the qualifying exam. Students who fail to pass the written portion of the qualifying exam a second time will be recommended for dismissal from the Experimental Doctoral program.

Oral Defense and Evaluation Criteria. Student candidates will schedule the oral defense meeting with their committee members between two and four weeks after being notified of a "passing" score on the written portion of the exam. The oral defense meeting will provide an opportunity for student candidates to (a) respond to and clarify questions raised by their written responses, (b) demonstrate additional knowledge that was not specifically assessed in the written portion but is still pertinent to the approved bibliography, and (c) practice responding to and defending arguments related to social psychological theories, empirical work, and methodological approaches.

At the end of the defense meeting, each committee member will provide an evaluation score: 2, honors; 1, pass; 0, fail. To pass the exam, a student must receive no more than one Fail across all three committee members. Students who fail the initial oral defense will be allowed to reschedule one additional oral defense meeting within the next two weeks. If a student neglects to schedule a second oral defense meeting or if the student fails two oral defense meetings, barring extenuating circumstances, the student will be recommended for dismissal from the Experimental Doctoral program.

**Your qualifying exam is not a university excused absence to miss classes, assistantship duties (e.g., teaching a class), or any other department / university duty.**