Cognition and Neural Science Graduate Handbook
Department of Psychology
University of Utah

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I. Goals of the CNS Graduate Program

The overarching goal of the graduate training program is to move students from being undergraduates who have a grasp of issues and methods as described by scholars, to functioning as scientists who formulate and answer important questions. Successful graduate training results in a shift in the locus of control from instructor to student, so that in the course of graduate training a student increasingly takes responsibility for their own education, and emerges with marketable professional skills and attitudes. This transition requires that faculty provide the initial structure to ensure students 1) master methodological and writing skills, 2) acquire breadth of training, 3) have appropriate models for professional ethics and behavior, and 4) experience training in conceptual and theoretical analysis and in independent thinking. The curriculum should be reasonably coherent, broad, rigorous, flexible, and responsive to individual student interests. It also should facilitate establishing a community that includes all CNS students and demonstrates how the different CNS methods and theories are related.

The CNS Graduate program aims to provide training in cognitive psychology, emphasizing both neural and applied levels of analysis. We have two defined sub-areas, cognitive neuroscience and applied cognition, and many of the faculty research interests cross over both sub-areas. Our program uses a mentor system that encourages new students to join an ongoing program of research in a particular laboratory or when applicable, a larger research group that may span multiple laboratories. Students are trained for careers in both academia and industry; the curriculum is therefore designed to help students gain expertise in basic research techniques, theory development, and teaching skills. All students are encouraged to present their research at national scientific conferences and to publish their research in professional journals.

II. Coursework Requirements

Students are required to complete a collection of courses to ensure that they receive training in—and demonstrate graduate-level mastery of— discipline-specific knowledge (DSK) in line with the APA Standards of Accreditation. The DSK curriculum is designed to provide breadth across the discipline of psychology so that each graduate is assured of being familiar with the central components of scientific psychology. The four DSK categories include: 1) Basic Content Areas in Scientific Psychology (**A**ffective, **B**iological, **C**ognitive, **D**evelopmental, and **S**ocial aspects of behavior); 2) Advanced Integrative Knowledge in Scientific Psychology; 3) Research Methods, Statistical Analysis, and Psychometrics; and 4) History & Systems of Psychology. Students are allowed to meet multiple DSK requirements with a single course.

1. Basic Content Areas in Scientific Psychology (ABCDS)
    a. The CNS area *requires* the following courses to fulfill the Biological and Cognitive DSKs:
        - PSY 6700 Advanced Cognitive Neuroscience
        - PSY 6120 Advanced Human Cognition

2. Advanced Integrative Knowledge in Scientific Psychology
    a. Students must complete a single course to fulfill the advanced integrative knowledge requirement. Integrative knowledge entails graduate-level scientific knowledge that encompasses integration of multiple basic discipline-specific

content areas (i.e., integration of at least two of the ABCDS domains). Courses that fulfill this requirement include:

- PSY 7966 Cognitive and Affective Bases of Behavior
- PSY 6220 Cognitive Development
- PSY 6260 Social Development across the Lifespan
- PSY 6465 Biosocial Mechanisms of Health, Development and Stress

* NOTE: Two of the three required courses above should be completed prior to completing the master's thesis.

3. Research Methods, Statistical Analysis, and Psychometrics;
    a. Two course first-year quantitative sequence: PSY 6500 Quantitative Methods I and PSY 6510 Quantitative Methods II. These two courses *must* be completed in the first year.

    b. PSY 6140 – CNS Approaches to Research. We strongly recommend this course be completed prior to the master's thesis.

4. History and Systems of Psychology
    a. PSY 7508 (History and Systems) is not required by the CNS Area but is recommended, particularly for students who have not previously had a similar course. Students should discuss enrolling in History and Systems with their advisors.

Additional Course Requirements

1. Students are required to enroll in PSY 6000 (First-year Practicum; 1 course credit) in the first semester of graduate study. This course provides professional development information that is central for success in graduate school.

2. Students are required to enroll in PSY 6100 (Teaching Practicum; 1 course credit) in the second semester of graduate study. This course prepares students for teaching undergraduate courses by providing basic instructional skills.

3. At least two different *CNS area seminars* are required and more than two are encouraged. It is suggested that students take a number of seminars in diverse areas in order to broaden thinking about different cognitive approaches. We strongly recommend at least one seminar with a cognitive neuroscience emphasis and one with a basic/applied cognition emphasis, although some seminars do not have clear boundaries between these areas and it is not required to document the two separate areas.

4. Students are required to regularly attend meetings of PSY 6130 (CNS Research Group). At these Brown Bag meetings, students, faculty, and invited guests present their current research and ideas, with an emphasis on research proposals at all levels. In addition, the meetings include discussions of topics of shared interest in the service of developing new research ideas and collaborations as well as professional development topics. Faculty outside the CNS area, including guest speakers from other departments or campuses, also

give presentations on occasion. Students should enroll in PSY 6130 when possible (so as to not exceed the University's 12-credit hour limit per semester). (see section *X* below for more information).

5. The Master's Degree requires at least 6 hours of PSY 6970 (Thesis Research, Master's). The Ph.D. requires at least 14 hours of PSY 7970 (Thesis Research, Ph.D).

6. The advanced quantitative courses (e.g., MLM, SEM) offered in the department are not required for CNS students, but strongly encouraged for those who will need the analysis techniques for their own research projects.

Other courses in programs or departments outside of psychology are regularly offered that might be useful for some students. Relevant departments/programs include the Neuroscience Program, Biomedical Engineering, Philosophy, Linguistics, Educational Psychology, etc… Students are strongly encouraged to discuss course options outside of the psychology department with their advisors.

Summary of CNS and Departmental Course Requirements for Masters and Doctoral Degree

Course	*Details and Timeline*
First Year Practicum, Psy 6000, 6100	Complete two semesters in first year
Three DSK core courses - *Psy 6700* Advanced Cognitive Neuroscience (Fulfills Biological DSK core) - *Psy 6120*, Advanced Human Cognition (fulfills Cognitive DSK core) - *Third Course*, must fulfill Integrative Knowledge Core	Two out of the three must be completed by the end of Spring semester of the 3rd year, before the master's degree; the third must be completed before the Ph.D.
Quantitative Methods, Psy 6500, 6510	Complete in Fall and Spring of first year
CNS Approaches to Research, Psy 6140	Complete prior to master's (strongly recommended) -- no later than 3rd year (required)
History and Systems, Psy 7508	Strongly recommended
At least two CNS area seminars (more are recommended)	One with cognitive neuroscience emphasis and one with applied cognition emphasis
CNS Brown Bag, Psy 6130	Every semester

III. Laboratory Work and Example Timeline

Students are expected to enter the program to work primarily with a specific faculty advisor and to be actively involved in research throughout their graduate training. It is also common to enter the program with a primary and secondary advisor in mind, or with the aims of working in multiple laboratories. *The conduct of research should be given high priority*. Students should be actively involved in research at *all* stages of their graduate training. This involvement is in addition to the formally required master's and dissertation project. Although much of the student's research activity will be with their advisor, collaborative projects with other faculty and students are strongly encouraged and supported. Extensive research and writing experience in graduate school is excellent preparation for one's professional life. In addition, a student needs to have completed, written up, and published several research projects to be viable on both the academic and applied job markets.

An example timeline to facilitate progress in research is described below. Note that this is a guideline for students entering the program without their master's in Psychology. See section IV for students entering with prior graduate work

First-year

A. Students are expected to actively participate and "take ownership" of at least one empirical research project that fits into the ongoing work of the lab. This is a minimum and most students should be involved in more than one project as the year progresses. This initial research experience is expected to help set the stage for a master's thesis project (see more detail below) and may become part of the project.

B. Students should organize a three-faculty member supervisory committee by the end of Spring semester. The student should work with the faculty advisor to develop the master's project idea. A pre-proposal (consult with advisor on format) on the topic of interest for the master's project should be presented to the supervisory committee members at this time to discuss the idea, the scope, and timeline of the project. The meeting may be with the committee as a group, or individual meetings with the student and faculty member. A majority of the supervisory committee should consist of CNS area members unless the entire CNS faculty approves otherwise.

C. First CNS brown bag talk

D. Submission of grant proposal (e.g., NSF pre-doctoral GRFP) by the beginning of the second year. *Students should consult with their advisors about whether to submit in year 1 or year 2.*

Second-year

A. Complete the master's proposal and hold colloquium in the Fall semester. Faculty advisor should work with the student to develop the proposal in its complete form before it is formally given to the rest of the supervisory committee. However, the student should keep open communication with the other supervisory committee members during the development of the thesis proposal, e.g., request feedback, discuss ideas, etc.

B. Conduct master's research project. Aim to complete the thesis defense by summer after second year.

C. Conduct secondary project, or projects, which expand the scope of the student's research, stimulate further research ideas, and lead to publishable work.

D. Write and submit manuscript(s) for publication

E. CNS brown bag talk, focus on master's thesis project or other significant project

Third-year

A. Complete the master's thesis and hold defense by the end of the Fall semester of the 3rd year. Faculty advisor plays a significant role in all parts of the Master's including experimental design, data analysis, and feedback on writing.

B. Propose Preliminary Exam project (see more details below) by the end of Spring semester.

C. Conduct research that will become preliminary studies for dissertation and lead to publishable work.

D. Write and submit manuscripts for publication

E. CNS brown bag talk

Fourth-year

A. Turn in the Preliminary Exam project three months after proposing

B. Write dissertation proposal and hold colloquium

C. Continue/develop secondary research projects that may be outside of the dissertation

D. Write and submit manuscripts for publication

E. CNS brown bag talk, consider the conceptual talk as described in section VIII

Fifth-year

A. Complete dissertation research and hold oral defense

B. Write and submit manuscripts for publication

C. CNS brown bag talk on dissertation or other significant project

Note: It is required to give the committee at least two weeks to read any substantial document before a defense or presentation. If otherwise, students should discuss an alternative plan with the faculty member.

IV. Students Entering with Prior Graduate Work

As discussed in the Psychology Department Graduate Handbook, students who enter with a Master's or other prior graduate work have the option to establish a 3-member supervisory committee that will work with the student to determine which requirements have been satisfied and which remain to be completed. The supervisory committee will help the student develop a timetable for completing requirements. If the committee agrees to waive courses, the student

should submit a syllabus and copy of the textbook to the current or most recent instructors of the courses proposed for waivers. The instructor(s) may also request additional information about the prior coursework. Once the student establishes which master's level requirements remain, she or he should propose a 1- or 2-year schedule for completing them, have it signed by the supervisory committee and Graduate Committee Chair, and place a copy in the student's folder (see Psychology Department Graduate Handbook for full details).

The master's thesis requirement may be waived if the supervisory committee approves a Master's thesis completed at another institution. The student would need to submit the thesis to the committee and undergo a defense meeting on the project. The committee should send a memo on the decision to the Graduate Committee Chair for final review and approval, and placement in the student's folder. The memo is for the student's protection, as it assures that whatever agreement is reached will be honored by the Psychology Department. If the thesis is not approved, or in conjunction with the advisor, the student decides not to waive the requirement, the student will need to complete a thesis project. Please see the departmental graduate handbook for more details.

V. Master's Thesis Guidelines

The CNS area has designated that the master's thesis defense is to be completed by the December of the student's 3rd year in the program. This goal can be attained with the following timeline:

1. Appoint committee and have a pre-proposal idea by the end of Spring semester of the first year
2. Hold colloquium in Fall semester of the second year
3. Hold defense by the end of the Fall semester of third year, at the latest.

The purpose of the master's project is to provide students with experience in all phases of the design, execution, analysis, interpretation, and communication of research. Thus, it is essential that projects be manageable within the time frame provided by the area. The CNS area faculty believes that the learning objectives of the master's requirement can best be met by performing a research project that is part of the advisor's ongoing research program. *It is neither necessary nor desirable to design projects that are completely independent of the advisor's research, or that are broad in scope.* The important criteria are that master's projects be well designed, competently executed and ask and answer a clearly stated question. The master's proposal should be a document including Introduction/Specific Aims, Background, Proposed Methods, Predictions/Relevance, and References (specific length may depend on methods used—consult with your advisor or other committee members). It is recommended that students write a pre-registration document (e.g., https://help.osf.io/article/158-create-a-preregistration) along with their proposal, if applicable. Please consult with your advisor. The thesis should be written in the style and length of a submitted manuscript.

VI. Preliminary Exam

The format of the exam is a literature review paper. The purpose and goals of a paper such as this are for the student to demonstrate the ability to synthesize and critically analyze a body of literature with intellectual independence from their faculty advisor and supervisory committee.

The paper should have an original thesis and provide a critical perspective, meaning that the literature should be analyzed in a way that involves the student's own ideas and provides a new contribution to the research topic. Often this will involve the development of future research/experiment ideas which may inform the dissertation. The student's goal should be to aim for a publishable review paper (although it is not a requirement that the paper be publishable for a pass or high pass to be awarded). Beyond a test or opportunity to write a publishable review, it can also be helpful to view the preliminary exam and oral defense as an opportunity to demonstrate your growth as an independent scientist to yourself.

What does intellectual independence mean?

The project is a test of the student's ability to think and write with depth on a topic in cognition or neuroscience, likely related to their dissertation topic, but not necessarily so. Feedback from the advisor, committee, or other colleagues during the process is encouraged in the form of high-level discussions about conceptual ideas and/or questions about the organization/flow of the paper. Students should seek guidance from their advisor(s) when needed. Feedback in the form of written editing in the document is not permitted.

What is the process for proposing and carrying out the preliminary exam?

Before the proposal

1. Think about potential ideas for the prelim and discuss with your advisor.
2. Arrange informal meetings with your potential prelim sub-committee members to request their participation on your committee (the prelim sub-committee is made up of 3 faculty members). At this meeting, present a general idea of your direction of the preliminary exam topic and get oral feedback if possible.
3. Develop the proposal idea. This includes writing brief statements of the idea to present to your advisor and gathering the relevant literature. This is a process that should take 1-3 months.

The proposal

4. Arrange a formal meeting of the prelim sub-committee members to propose and agree on your preliminary exam project. This should be a brief oral presentation of the idea (may use presentation slides but this is not required) accompanied by an abstract, outline of the paper, and partial reference list. Before this meeting, send the abstract and outline to the *entire CNS faculty*, which serves as the examination committee. The faculty are encouraged to respond with feedback to the student and primary advisor before the formal sub-committee meeting. At the meeting, the committee works with the student to come to an agreement about the scope and timeline for the completion of the project. A reasonable goal for completion is a 3-month period (starting after the formal committee meeting) and about 30-50 double spaced manuscript pages.
5. The agreement on format and timeline should be written up and circulated to all CNS faculty.

Completion of the project

6. Submit the final paper to your advisor. The advisor must approve the document before it can be submitted to the prelim sub-committee. If the advisor gives feedback that the document is not ready for submission, that feedback should be documented and distributed to the committee.

7. Submit the final paper to your prelim sub-committee at least two weeks before a scheduled oral defense meeting.
8. Conduct a brief presentation of the paper (about 20 minutes with slides) and be prepared to answer conceptual questions relating to the proposal.

Timeline and Procedure for Preliminary Exam

Students should form a 3-faculty member sub-committee in preparation for the preliminary exam and dissertation proposal after the master's is completed by the beginning of the Spring semester of their 3rd year. The entire CNS area faculty make up the *examination committee*, but will take the recommendation of the 3-faculty member sub-committee on the outcome of the exam. While the committee members may change for the dissertation, the committee should be formed with the topic of the preliminary exam and dissertation in mind. According to the graduate school requirements, the dissertation committee requires one member outside of the Psychology department, although the preliminary exam committee does not require an outside member. The exam should be completed by the agreed upon target date. If more time is needed, the student must request approval from the 3-person sub-committee and the extended timeline will be written up and circulated to the examination committee (all CNS faculty).

The exam should be completed by the beginning of the Fall semester of the 4th year.

Grading of Preliminary Exam

Each of the sub-committee members will evaluate the written and oral defense of the project and will then provide an overall score. The project will receive a passing grade when the overall scores of three or more graders are pass/high pass. When the scores of three or more graders are rewrite, the project will be revised and resubmitted within one month of receiving feedback. When the scores of three or more graders are fail, the student will have failed the Preliminary Examination Project and should follow instructions for remediation under "Failing grade" below. In the unusual case that the grading committee cannot reach a majority opinion (e.g., pass vs. rewrite vs. fail), the scores will be sent to the Area Faculty for their professional judgment and the assignment of a grade. Once a final grade has been determined, the prelim committee will provide to both the student and the area (examination committee) written documentation of the student's score, along with an explanation of what additional steps, if any, may be needed to pass the Preliminary Examination Project.

Grading scale. Each project will be graded by the committee members using a 4 point scale:
0 = Fail (Inarticulate, vague, below that expected of modal students)
1 = Rewrite (Underdeveloped, areas of significant weakness)
2 = Pass (Clear, complex, concise)
3 = High Pass (Exceptional, better than expected of modal students)

Passing. A passing grade on the project involves receiving a final score of pass/high pass from at least three of the graders.

Rewrites. If a student is asked to rewrite the prelim, he or she will have one month to do so following receipt of written feedback. The student should hand in the revised prelim to the

advisor, who will distribute it to the committee. The committee will grade the revised project as either *pass or fail*, no more than two weeks after it has been turned in and distributed. The committee chair will then provide the student with written feedback and the final grade. Only one rewrite is allowed.

Failing. If the student fails outright (without a rewrite option) or fails after a rewrite has been completed, the student will be allowed a second chance to successfully complete the prelim. In such a case, the student needs to develop a plan to remediate the problems noted (in collaboration with their advisor). The CNS area faculty are required to formally approve the plan (typically this will involve proposing and writing an alternative project on a new topic). Once the remedial plan is approved by the area faculty, the student must complete the plan and turn in the written product within three months. One rewrite of the new project is allowed. If the student fails a second time, he or she will be dismissed from the program.

Alternative Formats

If a student wishes to propose an alternative format of the preliminary exam (other than the review paper), the student should petition the supervisory committee to do so. Consult with your advisor prior to requesting any alternative format. Assessment of the preliminary exam will follow the same format as described above.

VII. Dissertation Proposal and Oral Defense

After successfully completing the preliminary exam, a student should formalize their 5-person supervisory committee within 3 months of finishing the preliminary exam and meet with their committee to set a timeline for the dissertation proposal. Once the supervisory committee is formed, the student should give this information to Nancy Seegmiller and she will enter it electronically in the graduate tracking system, and report that the preliminary exam is completed. The proposal should be based on preliminary data, but proposed early enough in the project so that substantial empirical work will be carried out after the proposal date. The proposal is expected to be written in the format of a grant proposal to a relevant agency, usually NIH or NSF. The proposal should be approximately 12-15 single-spaced pages long (consult with your advisor/committee if you wish to follow an alternative grant format). It should include specific aims of the research, background, preliminary work, and proposed experiments with hypotheses. The written proposal should be approved by the faculty advisor and submitted to the dissertation committee at least two weeks before the oral proposal defense. The proposal defense should be completed by the Spring semester of the 4th year with the aim to complete the dissertation by the end of the 5th year.

Completed dissertation

The department handbook has guidelines for the write up of the dissertation as one or two stand alone empirical articles. The CNS area expects one document written as an empirical article of a length ranging from 50-100 double-spaced pages, without counting references. It should be written in APA format and of the quality of a first-tiered manuscript submission. The relative length of the introduction, methods/experiments, and discussion sections will vary among students' individual research programs and expectations should be discussed with the student's advisor and dissertation committee. Students should submit the dissertation document to the supervisory committee (2 weeks in advance of the oral defense) only after it is approved by the

faculty advisor. The oral presentation should be about 30 minutes with at least 1 hour reserved for questions/discussion. The expectation of the dissertation is that the project reflects the student's independent and original scientific contribution.

The CNS area expects that students complete the Ph.D. requirements within five years from the date of matriculation into the graduate program. Any student may receive an additional year extension upon recommendation of the supervisory committee and approval of the department chair or director of graduate studies.

VIII. Formal Thesis, Prelim, and Dissertation Document Procedures

It is required that all formal documents are submitted at least **two weeks** in advance to the supervisory committee. The primary advisor(s) must approve the document before it is submitted to the committee. Thus, it is important for the student to calculate the timing of defenses with this in mind (e.g., if the desired defense date is April 1, then the document needs to be submitted to the advisor by March 1 to allow for submission to the committee by March 15, two weeks before the defense).

Masters and Dissertation theses must be defended during a semester in which the student is enrolled. Many faculty will not be available for summer defenses. The student must consult with their committee at the time of the proposal to determine a timeline for the defense and the availability of the committee members.

IX. Teaching Experience

Each student will complete one semester as a graduate instructor (the primary instructor for a course) or as a teaching assistant (TA) for Research Methods or Quantitative Methods (independent teaching of a lab section). The GI can be for an in-class or an online course and ideally for a core content course in the CNS area (e.g., Cognitive psychology, Sensation and Perception, Brain and Behavior, Human Factors, Engineering Psychology) or for Research Methods or Quantitative Methods. Evaluation of the teaching requirement will include observation by the advisor or another faculty member. If the course is online, then a plan should be determined by the advisor to have access to the course to observe the online teaching. This requirement does not have to be completed before the dissertation proposal. In the event that the student has decided to not pursue a career in academia, then he or she can petition the CNS area coordinator with the approval of their advisor for this requirement to be waived by the area. The area coordinator will then consult with the rest of the area faculty before making a decision to waive the requirement. Demonstration of effective teaching through a TAship may be requested by area faculty to receive a waiver. This waiver cannot be requested until after requirements for the master's degree have been met.

X. Brown Bag

Tenure-line faculty and students in the CNS program are *required* to regularly attend Brown Bag meetings and attendance is *very strongly encouraged* for all other members of the CNS program community. The Brown Bag is important for several reasons, including that it is the one occasion when all CNS faculty and students meet regularly. This meeting therefore has the potential to facilitate a student's professional development and in helping to give a sense of community. The

Brown Bag should serve several purposes. It should feel non-evaluative so that new ideas can be presented and nurtured and creativity encouraged. It should serve as a forum for students to learn how to give professional presentations, with faculty and other students providing open, constructive feedback. It is hoped that constructive feedback will be seen as such, by both faculty and students, and not as personal attacks. The goals of the Brown Bag should be discussed at the beginning of the semester to reach a consensus on our approach. General guidelines are as follows.

1. Meetings will be held Thursdays, 3:30-5. That time slot should be reserved, although meetings may not occur every week.

2. Different presentations may serve very different purposes. A speaker should therefore identify their goals. For instance, some presentations may be exercises in short conference talks, others may be attempts to get the area to consider broader, less specialized issues.

3. Students are expected to give a presentation at least once per year. Faculty are encouraged to present as well, to serve as role models and to facilitate communication about research among area members.

4. Each student is expected to give one Brown Bag before graduation that is a serious theoretical and conceptual analysis. This Brown Bag might consist of describing, for example, more of the intellectual and scientific development of the topic of the student's dissertation than is appropriate to put in the dissertation itself. The topic need not, however, be closely related to the dissertation. The critical requirement is conceptual depth.

5. At least one Brown Bag per year will be devoted to professional development, such as issues related to scientific integrity (authorship issues, mentoring issues, conflicts of interest, and so on).

6. Announcements of each brown bag topics from all areas will be circulated to the entire department. To the extent possible, we will use these meetings to establish better links with other areas.

7. This meeting time may also be used for area faculty meetings and faculty-student discussions of area issues.

XI. Evaluation Procedures

A student's progress and development are evaluated through a variety of formal processes in addition to informal monitoring by the advisor. The CNS Faculty conduct semiannual reviews of all CNS students at the end of the fall semester and spring semester. At the end of the Spring semester of each year, the psychology department also conducts a review of the progress of all students. At this time the full faculty vote (1) to present commendations to select students in the areas of research, teaching, and service, (2) to award a Professional Development Award ($500) to the student making the most significant contribution to research, teaching, and service that year, (3) to recommend deadlines for students making slow progress through the program, and (4) to agree upon remedial measures or probation or dismissal in rare cases. Note that research

commendations and professional development awards are decided by the CNS faculty by holistically assessing each student's progress in each domain of research, teaching, and service that year.

Evaluation Criteria and Appeals

The CNS Area Coordinator presents the progress of CNS students in an annual student review meeting of the department, and all faculty have the opportunity to give feedback based on their interactions with the particular student. A formal statement of evaluation and recommendations of the student is then sent to the student by the advisor, with the approval of the CNS Area coordinator and the Department Chair.

The academic criteria for student evaluations, appeals, and grievances are detailed in the departmental handbook and Graduate School bulletin.

XII. Advisor-Advisee Collaboration and Career Development Plan

Objective

The Advisor-Advisee Collaboration Form (see below) is designed to facilitate mutual expectations concerning the mentor-mentee collaboration. The Career Development Plan (CDP) offers students a mechanism for allowing their interests, skills, values, and career goals to shape their doctoral studies. In addition to helping students with self-assessment and planning, the CDP increases the flexibility of training profiles and facilitates communication about professional goals with one's advisor(s) and the other faculty members of the CNS Area.

Process & Requirements

Students develop an Individualized Training Plan during their first semester of the graduate program as part of PSY 6000. The goal is to outline a graduate training plan that includes both coursework and applied training experiences that will be accomplished both within the first year and across a two-to-three-year period. The CDP is an extension of this process.

At the end of the second year for those entering without a master's, or the first year for those entering with a master's, the CDP assesses career goals and activities that support those career goals. This plan should be developed with the advisee and advisor.

A CDP begins with an in-depth self-examination. This can include discussions with multiple faculty including career-line and adjunct faculty, meeting individuals outside of the university, talking with the CSBS career counselor, and online tools like:

- https://www.imaginephd.com/
- https://www.apa.org/education-career/guide/individual-development-plan

Students should discuss with their advisor what meetings and tools they are using to explore their interests, skills, values, and career goals. Although answers to these questions are not required to be provided to faculty, an important part of this process will be to consider questions like:

1. Right now, what research and scholarship activities do you enjoy the most, and what activities do you enjoy the LEAST (*reading the literature*, *analyzing data; designing studies; developing testable hypotheses, writing literature reviews; writing Results/Discussion sections; writing lectures, writing grant applications; meeting with students; developing course assignments; initiating new collaborations; leading discussions; giving public talks; managing complex data collection efforts*).
2. How do you balance the value of engaging in research versus teaching?
3. How important is having control over the nature of the work you do to you?
4. How dedicated are you to future work in academia versus industry, non-profit, etc…?
5. How important is it for you to have control over where you live?
6. How do you handle unpredictability and uncertainty?
7. How important is having control over the direction of your work?

Upon completing self-reflection activities, a document (see *Appendix, Career Development Plan Form*) must be produced, signed by the student and advisor and submitted to the area coordinator. The CDP should be reviewed and revised (if necessary) each year; revisions to planned coursework or other substantial elements should be approved by the CNS Area at the mid-year or end-of-year area meetings.

APPENDIX A
CAREER DEVELOPMENT PLAN FORM

Career Development Plan for:

Date:

1. Describe the steps you took to explore your interests, skills, values, and career goals. Who did you meet with? What tools did you use?

2. Describe your current career goals and how they relate to your interests, skills, and values.

3. Describe how your career goals integrate with the training offered in the CNS Area.

4. Describe the kinds of training, certifications, and experiences required to support your goals.

5. Outline your planned coursework, including alternative courses; approximately 4 courses will likely be required following the Master's to meet the Ph.D. credit hour requirements. Briefly state how each course will contribute to your CDP. CDPs should highlight breadth in the components of scientific psychology by incorporating coursework across the four DSK categories 1) Basic Content Areas in Scientific Psychology (Affective, Biological, Cognitive, Developmental, and Social aspects of behavior); 2) Advanced Integrative Knowledge in Scientific Psychology; 3) Research Methods, Statistical Analysis, and Psychometrics; and 4) History & Systems of Psychology.

6. Identify additional planned training opportunities, including plans for publications, conferences, certifications, workshops, teaching, departmental service and other professional development experiences.

_____ (signature, student), _____ (date)

_____ (signature, advisor), _____ _____(date)

_____ (signature, CNS area coordinator), _____ (date)

APPENDIX B
ADVISOR-ADVISEE COLLABORATION AGREEMENT

Student _____
School Year & Year in Program _____
Advisor _____

The purpose of this agreement is to document mutual expectations concerning our collaboration. It will be completed *collaboratively* by the mentee and the mentor.

1. Time Frame and Time Commitment
What is the duration of the collaboration covered by this agreement and the time commitment expected of the student and mentor?

2. Compensation/Funding
What kind of compensation, if any, is offered to the student? This might include basis of work for stipend (e.g., TA, RA), etc. Has the mentor agreed to fund the student for a particular study or during a particular time (e.g., GRA Fall on X grant; summer funding)?

3. Preferred Modes and Style of Communication
How do the student and mentor prefer to communicate, and with what frequency? What are the preferred forms of address (names, pronouns), and what degree of formality in language is preferred? Who will the student be interacting with or reporting to and how frequently?

4. Meetings
How often will the student and mentor meet, and who is responsible for setting the agenda?

5. Performance Evaluation and Outcome Assessment
What is expected of the student in terms of specific work products or outcomes? How will the student's development as a professional be evaluated? How will this evaluation be communicated to the student, and with what frequency? In other words, how will the student and mentor know whether or not the mentoring relationship has been successful?

6. Mentor Conflict of Interest
If the student is to work on a project related to any research in which the mentor has a personal conflict of interest or a financial conflict of interest as determined by the University of Utah Conflict of Interest Office and Committee, the mentor will disclose the conflict of interest to the student prior to start of the project. Visit research.utah.edu/integrity/.

7. Certifications/Training
Are any certifications required before the student can participate in the research? What is the plan for securing any required certifications? These might include training in lab safety, responsible conduct of research, human subjects protections, HIPAA certification, etc.

8. Rules and Procedures
Where can the student learn about rules and procedures associated with the research? What should the student do in case of an emergency associated with the research? What is considered an emergency in the context of the research? What should the student do if they make a mistake?

9. Lab/ Research Group Citizenship
What are the expectations of the student with respect to attendance at lab meetings, research meetings, colloquia, and other events? Are there specific lab or research group expectations?

10. Authorship
Should the research in which the student is involved be published (or otherwise disseminated), how will credit for the work be determined? Are there any restrictions on the release of information that should guide the student's communication about the research (e.g., in the case of patents or other sensitive information)?

11. Mentor Commitments
In all cases, the mentor commits to:

a. Provide the student with hands-on experience in research;
b. Support the student's well-being and development personally and academically;
c. Endeavor to be as clear as possible about expectations;
d. Be honest and straightforward with the student about their work;
e. Openly receive feedback from the student concerning the quality of the research experience; and
f. Be available to the student as an academic mentor.

To the extent that the student is interested, and as appropriate, the mentor will:

g. Encourage and help the student develop their own research projects and/or involve them more profoundly in existing projects;
h. Help them secure resources to enhance and continue their participation in research (e.g., research experiences, grants, etc.);
i. Provide advice to the student concerning next steps (graduate school progress, post-docs, employment, etc.);
j. Support the student's efforts to earn awards and other recognition for their research efforts.
k. (Any additional information as advisor and advisee see necessary)

At the end of the time frame agreed on above, the student and mentor will review this document together, and will evaluate the success of the mentoring relationship.

I (above-named student), agree to the above. _____, _____
Signature Date

I (above-named mentor), agree to the above. _____, _____
Signature Date