

# **Cognition, Brain, and Behavior Area Master's/Doctoral Requirements and Other Area Guidelines (Spring 2019--under revision)**

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## **Introduction**

This document presents the requirements of the Cognition, Brain, and Behavior Area for completion of the MA and Ph.D. degrees as of Spring 2019. It also describes other Area-related guidelines and considerations including when major degree requirements should or must be completed.

For students who are admitted to the Cognition, Brain, and Behavior Area in Fall 2019 or thereafter, this document supersedes the earlier Area requirements documents. Students who were admitted Fall 2018 or before may choose the requirements in effect at the time of their matriculation or may adopt the current requirements.

This document also lists the main degree requirements specified in the Graduate School's Bulletin of Information and/or in the Department's General Graduate Requirements document. Students should consult the respective documents for specific information pertaining to those requirements as well as other pertinent information (e.g., residency requirements, forms that are to be submitted, deadline dates, etc.)

## Master's Degree Requirements

- Completion of a 1<sup>st</sup> year research project and presentation of it at the Department's Fall Research Presentation event (Department requirement<sup>1</sup>)
- Completion of at least 30 credit hours (Graduate School requirement)
  - No more than 6 credit hours from Directed Readings or Thesis Research (S/U grade)
  - At least 26 credit hours from graded coursework (8 letter-grade courses), distributed in the following manner<sup>2</sup>:
    1. Quantitative Methods I (PSY 60100) with a grade of B- or better (Department requirement)
    2. Quantitative Methods II (PSY 60101) with a grade of B- or better (Department requirement)
    3. Completion of the CBB graduate core course sequence, which is in a 2-year rotation:
      - i. Cognitive (fall odd numbered years)
      - ii. Attention and Perception (spring even numbered years)
      - iii. Memory and Higher Order Processes (fall even numbered years)
      - iv. Language (spring odd numbered years)
    4. Completion of two additional specialized elective graduate courses (e.g., Cognitive Development, Programming, Sleep and Stress, Quantitative Neuroscience, etc.). The CBB faculty encourage (but do not require) students to take one elective outside of the CBB area to achieve greater breadth of understanding in psychology. *Any non-CBB course in the department that an advisor approves will qualify. Courses outside department need to be approved by the advisor and the CBB director.*
- Maintain a cumulative G.P.A. of 3.0 or better (Graduate School requirement)
- Successful oral defense of a Master's Thesis Proposal (Department requirement)
- Satisfactory completion and oral defense of the Master's Thesis (Department requirement)

An example schedule for the first two years would be as follows:

Fall Year 1: Fall Core, Quant 1

Spring Year 1: Spring Core, Quant 2

Fall Year 2: Fall Core, Elective

Spring Year 2: Spring Core, Elective

After the second year, students can take specialized seminars and any other relevant classes as necessary and appropriate.

The Graduate School requires degree-seeking students to maintain continuous full-time status by enrolling for *at least 9 credit hours* in the Fall and Spring semesters. Because stipends are for 12

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<sup>1</sup> Students should review the Department's General Graduate Requirements document and the Graduate School's Bulletin of Information for details about these respective requirements

<sup>2</sup> The 26 required credits = two Quantitative Methods courses, which are 4 credits each, plus six additional required courses, which typically are 3 credits each.

months, students are to be actively engaged in research and other scholarly activities during the summer. To receive stipend payments during the summer, students must enroll in Independent Summer Research (PSY67890), which is a 0 credit course. Note that the Graduate School's Bulletin of Information states:

*All degree-seeking students are expected to maintain full-time status and to devote full time to graduate study. No degree student may be employed, on or off campus, without the express permission of his or her Area and the Graduate School. (2018-2019, p. 23)*

## **Doctoral Degree Requirements**

- Completion of the Master's Degree requirements (Graduate School requirement)
- Department Invitation to Doctoral Candidacy (Department requirement)
  - Invitation is based on a positive recommendation by the Area faculty
- At least 60 credit hours or a minimum of 30 credit hours beyond the Master's Degree (Graduate School requirement)
  - The additional 30 credit hours can include graded courses and/or research credits (i.e., S/U grade).
  - Maintain a cumulative G.P.A. of 3.0 or better. (Graduate School requirement)
- Serve as a teaching assistant or instructor of record for at least two semesters (Department requirement)
- Completion of the Graduate School's training modules/workshop for the *Responsible Conduct of Research and Ethics* (Graduate School requirement). Students are encouraged to complete this requirement in their first year before beginning data collection.
- Successful completion of both the written & oral components of the Doctoral Candidacy Examination (Graduate School requirement)
  - The written component is the Doctoral Preliminary Examination required by the Department. As described below, the Cognition, Brain, & Behavior's Preliminary Examination involves an evaluation of the written Dissertation Proposal by the Doctoral Dissertation Committee. The written component must be passed before proceeding to the oral component.
  - The oral component is the Dissertation Proposal Defense. (Department requirement)
- Successful oral defense of the completed Dissertation (Graduate School requirement).

## **The Invitation to Doctoral Candidacy**

In accord with the Department's requirement, students must receive an Invitation to Doctoral Candidacy, before proceeding to the Preliminary Examination (the written component of the Doctoral Candidacy Examination). Upon completion of the Master's Thesis Defense, the advisor will notify the CBB director of his/her recommendation with respect to issuing an invitation. Led by the CBB director, the area faculty will evaluate the student's capability for doctoral level work. This capability will be assessed with respect to the student's academic performance, research productivity, and timely completion of requirements. The graduate student and advisor will be notified via a written letter of the outcome of the evaluation within four semester weeks following the defense. Students who do not receive an invitation will be dismissed from the program.

## **Cognition, Brain, and Behavior Area's Doctoral Preliminary Examination**

The Graduate School requires successful completion of both the written and oral components of a *Doctoral Candidacy Examination* for admission to doctoral candidacy. The Department refers to the written component as the *Preliminary Examination* and specifies the *Dissertation Proposal Defense* to be the oral component. The Doctoral Candidacy Examination requires the student to demonstrate adequate breadth of knowledge in several substantive areas of cognitive and/or cognitive neuroscience as well as the mastery of the theories and research methods in his or her major field of study. As such, it assesses the student's aptitude and readiness for becoming an independent researcher and scholar. The Cognition, Brain, and Behavior Area's Preliminary Examination consists of a formal evaluation of the student's written Doctoral Dissertation Proposal by the student's Dissertation Committee. The Preliminary Examination of the Dissertation Proposal must be passed before the student can proceed to the Dissertation Proposal Defense (i.e., the Oral Candidacy Examination).

The student may receive assistance formulating the dissertation proposal via discussions with the advisor and others. These discussions may concern any aspect of the proposal (e.g., identifying relevant background literature, the main research questions, the appropriate data collection and analysis procedures, etc.). However, the student may *not* receive assistance with the actual writing of the proposal (i.e., the student may not receive feedback on drafts of the proposal from the advisor or other faculty).

The Dissertation Proposal may be an extension of the student's previous work, such as his or her Master's Thesis. However, the extension should be substantive such that the completion of the dissertation research would constitute a separate and complete publishable study. In addition, the dissertation's introduction should be a *thorough* review of the literature relevant to the topic (akin to the review in a Psychological Review or Psychological Bulletin article), thereby demonstrating the student's expertise on the topic. The thoroughness of the literature review is an evaluation criterion for the Preliminary Examination of the proposal (see further description below).

The format of the Dissertation Proposal should conform to basic APA guidelines. It should be double-spaced, include a title page, abstract, introduction, sections describing the experimental methods or procedures for collecting and analyzing the data, a general summary discussion, and a complete reference section. Although not required, it is recommended that students format the proposal so that it is compatible with the Graduate School's requirements for the final Dissertation (e.g., margin and font requirements, Table of Contents, etc.).

### Preliminary Exam Committee/Doctoral Dissertation Committee

In the Cognition, Brain, and Behavior Area, the Preliminary Examination Committee is the same as the Doctoral Dissertation Committee. Ordinarily, the Dissertation Committee consists of the student's advisor and at least three other faculty members, who are selected by the student in consultation with his or her advisor. All must be regular faculty in the University (i.e. Teaching & Research, Special Professional, and Research Faculty). A majority of the members must be from the Teaching & Research faculty, and a majority must be from the Psychology Department. In addition to the advisor, at least one of the other three faculty members must be a primary or

secondary member of the Cognition, Brain, and Behavior Area. All members of the Dissertation Committee are expected to participate in the Preliminary Examination of the Dissertation Proposal, the Dissertation Proposal Defense (Oral Candidacy Examination), and the final Dissertation Defense. Should (rare) circumstances arise that necessitate a change in committee membership, such changes must be approved by the Director of Graduate Studies, the CBB Director, and the student's adviser. Different policies may apply in joint degree programs or in cases where co-directors are appointed.

#### Submitting the Proposal to the Doctoral Committee

The date on which the proposal is to be submitted to the Doctoral Committee is to be determined by mutual agreement between the committee members and the student. The members' agreement signifies their ability to complete the evaluation of the proposal within two weeks following the submission date. The student may submit the proposal in printed or electronic form depending on individual committee members' preferences.

#### Evaluation and Grading of the Proposal

The Dissertation Committee members will *independently* evaluate the Doctoral Dissertation Proposal with respect to four main criteria: (i) the thoroughness, accuracy, and relevance of the literature review, (ii) the theoretical significance or intellectual merit of the main research question (hypothesis), (iii) the appropriateness of the methodological plan for investigating the research question (e.g., the set of experiments or procedures for collecting data and the statistical methods for analyzing the data), and (iv) the overall coherence and clarity of the writing.

Each committee member will determine if the proposal merits a passing designation overall based on how well all four criteria are satisfied in the aggregate. Each committee member's overall designation will fall into one of three categories, Pass with Distinction, Pass, or Not Pass, based on the guidelines provided in Table 1. Each member also will provide written justification for each of his or her designations based on the strengths and deficiencies with respect to each criterion. These justifications will be accompanied by specific suggestions for improvement. When all the committee members, including the advisor, have completed their evaluations, they will submit their designations and justifications in a manner that is deemed appropriate by the committee. Once all evaluations have been submitted, the advisor will tabulate the designations, inform the committee of the results, and notify the student of the overall outcome (pass or not). A student will *Pass* the examination only if at least three of the four committee members assign either a Pass with Distinction or Pass designation. A student will *Not Pass* the examination if two or more of the committee members' designations are Not Pass.

**Table 1.** Guidelines for Assigning Prelim Outcome Designations in Relation to the Four Main Evaluation Criteria.

<p><u>Main Evaluation Criteria:</u></p> <ul style="list-style-type: none"><li>(i) thoroughness, accuracy, and relevance of the literature review;</li><li>(ii) theoretical significance or intellectual merit of the main research question (hypothesis);</li><li>(iii) appropriateness of the methodological plan for investigating the research question (e.g., the set of experiments or procedures for collecting data and the statistical methods for analyzing the data);</li><li>(iv) overall coherence and clarity of the writing.</li></ul>
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<b>6<sup>3</sup> - Pass with Distinction</b>
All 4 evaluation criteria are well met. Very few revisions, if any, are required in the view of the examiner.
<b>4 - Pass</b>
Minor revisions are necessary for some or all of the evaluation criteria to be met. For example, a revision may require further elaboration or clarification of portions of the literature review (criterion (i)), strengthening the motivation of the research question or its theoretical significance (criterion (ii)), or minor changes to the methodological plan (criterion (iii)). In the committee's view, these changes can be made by the student within a reasonable time frame so that the Oral Candidacy Exam can be scheduled in a timely way.
<b>2 - Not Pass</b>
Many or all of the four evaluation criteria are not satisfactorily met. For example, the literature review is incomplete (criterion (i)) and disorganized (criterion (iv)). In addition (or consequently), the main research question and/or its theoretical significance is unclear (criterion (ii)). Furthermore (or consequently) the description of the methodological plan (criterion (iii)) is inadequate to assess its appropriateness for investigating the main research question.

Notification of Outcome of the Preliminary Exam:

The student will receive written notification of the outcome of the examination no later than two weeks after the submission date. The student's advisor will be responsible for the written notification, which will cite the strengths and deficiencies of the proposal that were identified by the committee members. All committee members will review and approve the written notification before it is sent to the student.

Student feedback will include the average of the committee members' overall aggregate scores, along with either a summary of the strengths, weaknesses and suggestions for improvement identified by the committee members and/or verbatim copies the members' written justifications. The student is expected to revise the proposal according to this feedback. At this point, the student also may receive feedback on written drafts of the revised proposal from the advisor and/or other faculty.

If the student's Dissertation Proposal *fails* the Preliminary Examination, the student must revise the Doctoral Dissertation Proposal so that it addresses all of the deficiencies identified in the notification. The student may discuss the revisions with his or her advisor or other members of the Dissertation Committee. However, the student may not receive any suggested edits of the written drafts of the revised proposal from the advisor or the committee. The retake of the Preliminary Examination will follow the same process as the original. A second failure will result in a forfeiture of degree eligibility and will be recorded in the student's permanent record.

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<sup>3</sup>The Department of Psychology currently mandates a numerical scoring system on a scale of 1-6 be used for this exam. To maintain consistency with this policy, the three designations used by CBB for this exam will be assigned the numerical scores shown in Table 1.

## **Doctoral Dissertation Proposal Defense (Oral Candidacy Examination)**

The Preliminary Examination of the Doctoral Dissertation Proposal must be passed before the student can proceed to the Dissertation Proposal Defense (Oral Candidacy Examination). The student is expected to revise the Doctoral Dissertation Proposal so that it addresses the deficiencies identified in the preliminary exam notification. The student should not implement the methodological plan before passing the oral defense of the proposal. An exception is the inclusion of a pilot study, for example, to demonstrate the feasibility of the methodological plan, or studies that were completed prior to the Preliminary Examination of the proposal.

The student will schedule the defense on a date and at a time that is mutually agreed to by all of the Dissertation Committee members. The revised Doctoral Dissertation Proposal should be resubmitted to each member of the committee at least two weeks before the scheduled date of the defense unless all committee members agree to a shorter reading period. The proposal may be resubmitted in paper or electronic form depending on the preference of the individual committee members.

At the Dissertation Proposal Defense, the student is examined by the Dissertation Committee members on the proposal's contents and related topics. Successful passage indicates that, in the judgment of the Committee, the student has adequate knowledge of the relevant literature, problems, and methods of his or her field to proceed with the proposed dissertation project. Before the defense, the student consults with his or her advisor to decide whether to have a more or less structured question and answer format. The examination begins with the student giving a brief (no more than 15 minute) presentation of the proposed research. If a more structured format is chosen, then each committee member asks two rounds of questions. In the first round each member has 10 minutes for questioning. In the second round, each member has 5 minutes for questioning. The advisor is the last person to ask questions in each round. If the less structured format is chosen, then the committee members will take turns asking questions, with members allowed to “jump in” and ask follow-up questions based on previous questions from another committee member. In accord with Graduate School guidelines, the exam will be conducted over a period of not less than one and one-half hours and not more than two and one-half hours, excluding the Committee's deliberations.

After the examination is concluded, the student is excused from the room. The committee members discuss the student's performance, and a vote is taken by confidential ballot to determine whether the student passed or failed. A committee with five members requires four affirmative votes to pass the student. A committee with four members requires three affirmative votes to pass the student. Following the vote, the student will be invited back into room and informed of the outcome.

In the case of a pass, the dissertation committee may require further revisions of the proposal, including revisions to the methodological plan. Any revisions will be conveyed to the student when notified of the positive outcome.

In the case of failure, the committee members will convey the reasons for it and whether the majority of the members recommend a retake. In this situation, the recommendation will be

conveyed to the Department Chair who decides whether to authorize a retake of the oral Dissertation Proposal Defense. An authorization to retake must also be approved by the Graduate School. A second failure results in a forfeiture of degree eligibility and is recorded in the candidate's permanent record.

## Recommended and final dates for completing the major degree requirements

Students are expected to complete the major degree requirements by the recommended dates shown in the timeline below, and no later than the final dates. Failing to complete a requirement *by the recommended date* will trigger an evaluation of the student by the area faculty. If the evaluation identifies serious concerns about the student's progress, then the advisor will convey these concerns to the student in a written letter. Per the procedure described in the Graduate Bulletin, a copy of the letter will be forwarded to the director of graduate studies, who, in turn, will issue a warning letter that stipulates the steps for correcting the situation and the timeframe for doing so (e.g., completing the requirement by the final date). If the student fails to meet the stipulations in the warning letter, then the area faculty will evaluate whether the student is to be dismissed from the graduate program or placed on probation, which will result in the loss of Graduate School funding (see the Graduate Bulletin).

<p>1st year project &amp; presentation at the Department's Fall Research Presentation event  <b>Final Date: Beginning Fall Year 2</b></p>
<p>Master's Thesis Proposal Defense  <b>End of Fall Year 2</b>  <i>Final Date: End of Spring Year 2</i></p>
<p>Master's Thesis Defense  <b>End of Spring Year 3</b>  <i>Final Date: End of Summer Year 3</i></p>
<p>Invitation to Doctoral Candidacy</p>
<p>Preliminary Exam of Dissertation Proposal (Written Doctoral Candidacy Exam)  <b>End of Fall Year 4</b>  <i>Final Date: End of Spring Year 4</i></p>
<p>Dissertation Proposal Defense (Oral Doctoral Candidacy Exam)  <b>End of Spring Year 4</b>  <i>Final Date: End of Summer Year 4</i></p>
<p>Doctoral Dissertation Defense  <b>End of Spring Year 5</b>  <i>Final Date: End of Summer Year 6</i></p>

## Annual Evaluations of Student Progress by Area Faculty

The Graduate School requires an annual evaluation of students for purposes of determining whether they are in **good standing**, which is necessary for continued funding. Annual evaluations of each student's progress toward completing the degree requirements are conducted by area faculty at the end of the Spring Semester. In preparation for the evaluations, all area

students submit an updated copy of their CV and report form listing accomplishments since admission to the Psychology Program.

### Student Annual Report Form Information:

1. *Major degree requirements.* The semester and year of completing the 1<sup>st</sup> year project presentation, Master's thesis proposal defense, Master's thesis defense, preliminary exam, Dissertation proposal defense, and Dissertation defense.
2. *Course work.* The semester and year in which the course work requirements were satisfied (Quant Methods I & II, 3rd Quant course or Research Skills course, Graduate Cognitive Survey course, 2 General CBB course, and 2 other CBB courses).
3. *Publications.* Number of journal publications, manuscripts under review, manuscripts in preparation, chapters, and papers published in conference proceedings.
4. *Conferences.* Number of papers or posters presented at conferences
5. *Teaching.* List teaching assistant assignments (listing course title, instructor, semester & year) and courses taught as instructor of record. Also list courses in which a guest lecture was given, supervising undergraduate research, and other relevant teaching/mentoring experience such as participation in teaching workshops or certificate programs.
6. *Service.* Membership on academic committees in the CBB area, department, college, and university. Hosting a prospective graduate student during the graduate interview event. Serving as a graduate representative to faculty meetings, etc., assisting with CBBSG or talks by visitors. Ad hoc reviewing for journals or conferences, organizer for conference or workshop. Community service (e.g., judge for the Northern Regional Science fair).
7. *Grants/funding/awards.* Awards (teaching, research, conference travel, etc.), fellowships, grants, etc., received as well as proposals and applications submitted, but not funded.

Additional information about a student can be submitted by faculty outside of CBB who may have supervised the student's teaching or other activities.

### Evaluation Criteria

A student will be deemed in **good standing** if s/he is completing the degree requirements by the recommended and final dates, successfully completing required course work (with a minimum GPA of 3.0), meeting expectations for research productivity, and teaching and service-related activities (see also section on General Expectations). A student's good standing is determined by a simple majority vote of the area faculty. The outcome will be conveyed in a written letter that includes any pertinent comments concerning the student's progress. A copy of this letter is maintained in the student's department file. The evaluation letter also will inform a student of **the potential loss of good standing** if s/he has missed a final date for meeting a requirement or is in danger of missing a final date. Per the procedure described in the Graduate Bulletin, a copy of the letter will be forwarded to the director of graduate studies, who, in turn, will issue a warning letter that stipulates the necessary steps for correcting the situation, and the timeframe for doing so. If the student fails to meet the stipulations in the warning letter, then the advisor and area faculty will evaluate whether the student is to be dismissed from the graduate program or placed on probation, which results in the loss of Graduate School funding (see the Graduate Bulletin for further information).

Following the receipt of annual evaluation letters, students should meet with their advisor to discuss the results, their progress in the area, and their research and teaching goals. Students may also meet with the Area Director if they desire. Students may respond in writing to their evaluation letters. Such responses should be directed to faculty advisors with a copy to the Area Director. Students not in good standing will have 30 days to appeal their status to the graduate committee.

Students who do not receive an invitation to doctoral candidacy (based on the procedures outlined above) will be dismissed from the program.

### **General Expectations upon completion of Ph.D. (from the Psychology Department's Learning & Knowledge Objectives):**

- Co-authored at least 1 peer-reviewed publication (3-4 strongly recommended)
- Presented at a professional conference (2-3 strongly recommended)
- Regular attendance of and yearly presentation at the weekly brownbag (CBBSG)
- Assisted advisor with preparing a grant application
- Submitted at least one graduate fellowship application
- Served as a representative on program area, department, university, and/or professional committee.

### **Area Transfers**

The Cognition, Brain, and Behavior Area offers the following as recommended guidelines for those wishing to transfer to or from the Area:

- Cognition, Brain, and Behavior faculty must formally vote to accept students wishing to transfer into the Area.
- Students who are have been issued a warning letter or who are placed on probation are not allowed to transfer out of the Area.
- When a Cognition, Brain, and Behavior student transfers out of the area that student's stipend should remain with the area, or the Cognition, Brain, and Behavior Area should be given a new stipend for the next year's recruiting class. This policy is necessary to prevent areas from becoming disadvantaged over time as a result of transfers.

Also, it should be noted that students do not have to transfer out of the Cognition, Brain, and Behavior Area to have a non-area advisor supervise their research. All that is required is area approval, which can be petitioned for through the Area Director.