

THE OHIO STATE UNIVERSITY, DEPARTMENT OF PSYCHOLOGY
Cognitive Area Program

The major guiding principle in the Cognitive Area (CA) graduate training program is to involve students in the tasks that are performed professionally by cognitive psychologists--theoretical analysis, research design, data analysis, scholarly writing, teaching, editorial reviewing, and oral presentation of research. These experiences are provided starting from the beginning of the first year of graduate work. The course of training is designed to enable students to complete the Candidacy Examination before the start of their fourth year of graduate work.

All graduate students are expected to follow guidelines set forth by the Graduate School of The Ohio State University (see Graduate School Handbook) and the Department of Psychology (see Summary of Rules Concerning Graduate Students in Psychology; also, Graduate Program Handbook). Below are additional guidelines developed for graduate students in the Cognitive Area program. These guidelines, along with those of the Psychology Department and the Graduate School, define what the CA considers as making reasonable progress toward a degree.

I. Research

Each student is encouraged to work closely with faculty members. Independence in research is encouraged, although often at first the student gains an introduction to active research programs by assisting in currently ongoing research. As competence and experience are gained, the student assumes a larger role in the conception and initiation of projects, eventually becoming a full collaborator.

1. The first-year project is intended to immerse the student in research immediately upon starting the graduate program. The project can be a theoretical, quantitative, empirical, or methodological investigation that, by the end of the first year, demonstrates the student has begun to develop scientific competence. A paper (approximately 20-30 text pages) on the project must be turned in to the Area Head no later than the end of summer quarter of the student's first year. One style for the paper is the brief report in *Psychonomic Bulletin & Review*. The advisor and Area Head will evaluate the paper's quality, which must be judged acceptable for the student to continue in the program. The student is expected to give a 30-minute presentation on the project in one of the last Area brown bags in spring quarter.
2. The program requires a Plan A Master's Degree (i.e., with a Master's Thesis). It is expected that the Master's Thesis will be completed before the start of the student's third year in the program, and will be considered in conducting the second year review. If this deadline is not met, the Area in consultation with the chair of the Graduate Studies Committee may ask the Graduate School to issue an official warning to the student that further registration may be denied. If the thesis has not been completed after one additional quarter, the student may be required to meet with the faculty of the Area and provide an oral justification for continuation in the program. One possible outcome of this meeting is that the student will be advised to complete a terminal Master's program and not to continue in the Ph.D. program.

The Master's Thesis. At the outset of the project an M.A. candidate must submit a formal research proposal to faculty members of her/his Master's committee (guidelines suggested by Department Human Subjects committee should be followed when relevant). The committee is comprised of at least three faculty members. At least two of the three, including the student's adviser, must hold graduate faculty rank in Psychology. The third committee member need not be from the Psychology Department, but must be a member of the graduate faculty. The adviser must be at least Category II Graduate Faculty and be a member of the Cognitive Area; remaining committee members must be at least Category I.

The M.A. proposal should consist of a brief review of the relevant literature and a method section in which the proposed experimental design is outlined. The total length of the proposal should not exceed ten typewritten pages (double-spaced), and it should be presented to the three committee members involved no later than the beginning of the fall quarter of the student's second year. The proposal may include preliminary research, but students are strongly advised to submit the proposal as early as possible, because the committee may require changes in the design which could negate any work already completed. In addition, students should be advised that some faculty may require that they receive the proposal before any data collection is begun, regardless of any potential changes, and for that reason also, students are encouraged to complete the proposal as early as possible.

Immediately after a student has taken the one-hour oral examination necessary to complete the Master's Thesis, the Master's Examining Committee will carefully evaluate the quality of the thesis. The Committee in consultation with the Area will then recommend to the Graduate Studies Committee of the Department of Psychology whether or not the student should be allowed to pursue further graduate work toward the Ph.D. degree. **It is the student's responsibility to obtain appropriate forms from the graduate school and to schedule dates, times and location for the master's examination.**

3. Each student is required to complete two substantial pieces of research prior to the student's Doctoral Dissertation. The two research efforts, one of which normally constitutes the M.A. Thesis, need not be original to the student. Students are encouraged to collaborate on research with more than one faculty member to fulfill this requirement.
4. Every year, students are required to make one informal oral presentation of research findings to the Area faculty and graduate students. Students are strongly encouraged to present any research that they complete, and are expected to attend CA colloquia and brown-bag seminars. It is essential that students and faculty actively participate in these since much of graduate education takes place in informal interchanges outside of class.

Each year many of our students attend one or more professional conventions, and they often present posters or papers. At conventions, students can hear reports of current research a few years before they appear in print and also have informal contact with colleagues from other institutions.

II. Course Requirements

1. Statistics 826, 827, 828 must be taken in the student's first year.
2. The following courses must be taken by the end of the student's third year (i.e., prior to generals). See Cognitive Modeling Concentration requirements for separate course list if taking this path.
 - 602 - Psychology of Listening and Reading
 - 603 - Visual Perception or 606 - High-Level Vision
 - 604 - Psycholinguistics (Psychology of Language)
 - 609 - Introduction to Mathematical Models in Experimental Psychology
 - 620 - Attention and Performance
 - 815 - Decision Processes or 816 - Human Performance Theory
 - 877 - Human Learning I: Learning or 878 - Human Learning II: Memory
3. In addition, by the end of the third year (prior to generals), students are required to take three courses outside of the Cognitive Area. A few examples are courses in Quantitative, Psychobiology, Industrial Engineering, Linguistics, Music, Speech and Hearing Science, etc.

4. Students cannot use any single course to fulfill more than one of the course set requirements in Items II.2 and II.3.
5. At the end of the first and second years, following the above guidelines, the student in conjunction with the adviser will formulate a tentative set of courses to be taken during the subsequent (third) year to prepare for the general examination (see Section IV).
6. The following interpretation of letter grades is used by the Cognitive Area: A = Outstanding; A- = Expected Ph.D. level; B+ = Expected M.A. level; B = Pass/Fail Boundary; B- and below = Unacceptable. Area faculty have the option to require more of students in the program than students from other areas or other departments.

III. Annual Reviews

At the end of each year, Area faculty will evaluate each student's progress in the graduate program. The evaluation will be based on performance in coursework, meeting deadlines for the Master's Thesis and Candidacy Examination, and the student's general professional development. The student's advisor will then meet with the student and convey the progress report. Unsatisfactory progress will be noted in a letter, a copy of which will be kept in the student's file. The student has the right to appeal any evaluation or program requirement following the grievance procedures in the Department of Psychology Graduate Program Handbook. In some special situations the review will take account of extenuating circumstances that slow the student's progress.

IV. Candidacy Examination

Admission to candidacy for the Ph.D. degree is determined at the Candidacy Examination. The decision is made on the basis of the student's performance on both the written and oral portions of that examination. A recommendation to candidacy represents a commitment by the graduate faculty of the Area and enables the student to study for the highest degree offered by the University. The Ph.D. program demands a heavy investment from the student, faculty and institution. It demands unusual amounts of time, energy and financial support. As a program and as a department, the faculty work hard to ensure that these finite resources are available to students whose performance demonstrates high levels of ability and effort.

A student's graduate training is, because of the academic structure, "compartmentalized" into courses taken in specific calendar quarters. One result is that the relevance of information acquired in one time and place for a problem encountered in another time and place is often not recognized or fully appreciated. The Candidacy Examination has as one of its aims the promotion of "decompartmentalization." By requiring responses to questions that are issue- or problem-related, the exam seeks to promote integration and synthesis of knowledge and to encourage students to seek connections among pieces of information acquired at different times and on different topics.

The CA views the Candidacy Examination as a broad test of the student's knowledge in the field of cognitive psychology, and requires evidence of scholarship that would certify the student to conduct research and teach undergraduate level courses over a wide range of problem areas related to cognitive psychology. This will mean that a plan of study be formulated that goes beyond the student's course work and research experience at Ohio State. For example, independent readings that extend the reading requirements of courses taken by the student are expected and these should be reflected in the student's study plan. The specific contents of the plan of study are determined by the student's interests and by the interests and recommendations of the faculty members who form the Candidacy Examination committee. The faculty expect that a student who requests a specific faculty member as a committee member will have taken courses and/or participated in individual studies with the faculty member as a means of establishing a set of interests to be tested in the Candidacy Examination. Faculty members have the right to refuse membership on the committee of a student with whom, for example, they have neither common interests nor sufficient prior interaction.

The Candidacy Examination committee consists of at least four authorized graduate faculty members, including the student's adviser. At least three of the members of the committee must hold the necessary graduate faculty status in the Department of Psychology. (The adviser must be Category III; other members at least Category II). The adviser and at least one other member must be from the Cognitive Area. Also, it is deemed advisable that one member of the committee be from a department or departmental area outside the student's major area. This committee (referred to as the Advisory Committee by the Graduate School) writes questions for the written portion of the Candidacy Examination. The two-hour oral examination following the written portion is conducted by these faculty members plus a Graduate School Representative.

A formal version of the study plan (i.e., an organized reading list) must be submitted to the student's advisory committee by May 1 of the student's third year in the program, with the exam completed no later than Autumn quarter of the student's fourth year. The student must include with the plan of study: (1) a one page summary of courses taken and research completed to meet the requirements listed above in sections I and II; (2) a one page summary of his or her area(s) of specialization plus a brief explanation of the relationship of these specialty areas to the plan of study. Upon receipt of a study plan, Faculty members should give prompt and responsive feedback to the student.

Prior to assigning dates for the oral and written portions of the examination, it is the student's responsibility to *notify* the graduate school of intent to undertake the examination. **The student is responsible for obtaining appropriate forms from the graduate school and arranging dates, times and location of the examination.** The formal examination consists of written and oral portions. The student will have seven days to answer examination questions posed in the written portion and on the eighth day the written response will be date-stamped by an Area administrative associate. The student will be able to distribute the seven days between questions. The two-hour oral portion of the examination must follow the written examination according to guidelines stipulated by the graduate school (within one month); however, all faculty on the Candidacy Examination committee, including the faculty representative assigned by the graduate school, must be given at least one week to read the written portion.

Graduate school rules permit the option of a second attempt at Candidacy Examination, at the recommendation of the advisory committee. In cases where a second attempt is permitted, the student must complete the written portion of the second attempt no later than the Candidacy Examination scheduled one year after the first attempt. Failure to pass Candidacy Examination on a second attempt results automatically in dismissal from the program. If the examination is NOT taken within one year, the Area in consultation with the chair of the Graduate Studies Committee may ask the Graduate School to issue a warning that further registration may be denied. At a minimum the area will recommend to the Stipends Committee that NO departmental assistantship be awarded during further participation in the program.

V. Minors

Students whose major interest is in the Cognitive Area may minor in other academic areas within or outside of the Psychology Department. Outside course options mentioned under Item II.3 may be counted toward a minor program without restrictions. The nature of a minor program is determined by requirements for a minor as specified by the program in which the student chooses to minor. CA students are encouraged to familiarize themselves with these so that at Candidacy Examination time, they will have (a) satisfactorily completed minor requirements and (b) accepted terms on which the minor portion of the Candidacy Examination is administered by the minor program.

Students whose major interest is in a field outside the Cognitive Area (whether in the Psychology Department or not) may minor in the CA. A minor in CA requires that the student (a) identify an CA faculty member as a minor advisor; (b) take a minimum of 12 credit hours of CA courses; (c) take courses from at least two different CA faculty members; (d) pass a Candidacy Examination in which the minor area is represented on both written and oral portions. With respect to evaluation of a student's minor performance on the Candidacy Examination, at least two CA faculty will participate in construction and grading of the written portion of this Examination. The student's minor adviser (or surrogate in case of prior arrangement) will represent the CA in the oral examination portion, and his/her assessment will weigh jointly in the student's written and oral performance.

VI. Dissertation

The Doctoral Dissertation represents the final stage in the program. A Dissertation research problem is first proposed by the Ph.D. candidate and this is reviewed in a prospectus meeting attended by members of the student's dissertation committee. A dissertation proposal should include a brief review of relevant literature, a statement of hypothesis and rationale, proposed design(s), and it may often also include (or reference) pilot research. It is presented, at the outset of the dissertation project, to members of the candidate's dissertation committee who have the primary function of evaluating the merits of the proposed research and recommending potential changes. The proposal may include preliminary research, but students are strongly advised to submit the proposal as early as possible, because the committee may require changes in the design which could negate any work already completed. In addition, students should be advised that some faculty may require that they receive the proposal before any data collection is begun, regardless of any potential changes, and for that reason also, students are encouraged to complete the proposal as early as possible.

The dissertation committee consists of at least three faculty members. The adviser must hold Category III graduate faculty status. The other members must be either Category II or III. Category II faculty may serve as co-advisers. At least three members (including the adviser) of the committee must be from the Department of Psychology. The adviser and at least one other member must be from the Cognitive Area. These faculty and a Graduate School Representative will attend the two-hour oral examination. **It is the student's responsibility to arrange for the dissertation oral with the graduate school. This includes obtaining appropriate forms and scheduling dates, times and rooms for this examination.**

These stages of the graduate student's training are conducted according to rules described by the Graduate School (Section 9-9) and the Department of Psychology (Rules Summary items 15-16). Students must schedule 999 credits during their dissertation years to reflect the proportion of their graduate work devoted to dissertation research.

VII. Outside employment

The department of psychology attempts, whenever possible, to support graduate students during their training years via employment opportunities such as GTAs, GRAs, and so on. These are 50% employment positions with the assumption that the job itself provides learning opportunities for the student and the remaining time is devoted to graduate training activities. On those occasions where the department cannot support the student half-time, students may seek outside support. The department has no strict policies on the amount of outside employment but the CA faculty do not want such activities to jeopardize a graduate student's progress in the doctoral program. If students do not make satisfactory progress in courses and research, they jeopardize their standing in the program and outside employment will not be considered an extenuating factor for those students who are already funded 50% time.

VIII. Leave of Absence

There may be circumstances under which the student needs to take some time away from the program, and in most cases this can be arranged relatively easily. The first step in arranging for a leave of absence is for a student to consult with his or her adviser. If the adviser agrees concerning the need for and appropriateness of a leave as a means of facilitating the student's eventual return to and completion of the program, the student and adviser will need to decide on the length of the leave and the likely date of resuming graduate work, and submit that to the Area faculty. The faculty will consider a student's request at a regularly scheduled Area meeting. Requests for leaves of absence of two years or less are more likely to be approved by the faculty than are longer leaves, primarily because it is difficult for faculty to anticipate course and advising loads several years in advance.

There is no stigma attached to requesting or taking a leave. There are times when people need to consider temporary (or permanent) changes in circumstances, and in several cases students have returned after a leave to

successfully complete the Ph.D. and pursue a successful career in psychology. However, students should be cautioned that the Graduate School requires the student to complete the Dissertation within five years after the Candidacy Examination. A leave of absence does not alter this requirement.

Summary of Committees

Master's Committee: The committee is comprised of at least three faculty members. At least two of the three, including the student's adviser, must hold graduate faculty rank in Psychology. The third committee member need not be from the Psychology Department, but must be a member of the graduate faculty. The adviser must be at least Category II Graduate Faculty and be a member of the Cognitive Area; remaining committee members must be at least Category I. The oral examination lasts approximately one hour.

Candidacy Examination Committee: The Candidacy Examination committee consists of at least four authorized graduate faculty members, including the student's adviser. At least three of the members of the committee must hold the necessary graduate faculty status in the Department of Psychology. (The adviser must be Category III; other members at least Category II). The adviser and at least one other member must be from the Cognitive Area. Also, it is deemed advisable that one member of the committee be from a department or departmental area outside the student's major area. This committee writes questions for the written portion of the Candidacy Examination. The two-hour oral examination following the written portion is conducted by these faculty members plus a Graduate School Representative.

Dissertation Committee: The dissertation committee consists of at least three faculty members. The adviser must hold Category III graduate faculty status. The other members must be either Category II or III. Category II faculty may serve as co-advisers. At least three members (including the adviser) of the committee must be from the Department of Psychology. The adviser and at least one other member must be from the Cognitive Area. These faculty and a Graduate School Representative will attend the two-hour oral examination.

Here is a checklist of some major Area requirements:

- First-year project completed no later than summer quarter of the first year
- Master's Thesis completed by the end of the second year
- One informal oral presentation of research findings each year
- Candidacy Examination at the end of the third year
- One additional research project
- Teaching experience
- Dissertation

The student is encouraged to obtain copies of the Graduate School Handbook and the Department of Psychology Graduate Program Handbook for additional information for themselves and their advisers.

Cognitive Modeling Concentration

The Cognitive Modeling group at Ohio State brings together internationally recognized scholars in cognitive psychology and quantitative psychology. The shared aim is to develop mathematical and computational models as tools to better understand the human mind; how humans make decisions, how they process new information and remember old information, how these processes unfold over time, and how these processes vary across individuals. The research interests of the core and associated faculty bridge and bring together cognition, mathematical psychology, neuroscience, linguistics, cognitive science, education, marketing, and statistics.

Faculty Aims

The core faculty are Jay Myung, Alexander Petrov, Mark Pitt, Roger Ratcliff, and Trisha Van Zandt. Their goal is to provide graduate students and postdoctoral fellows with the skills and background knowledge that will enable them to participate fully in theoretical work in cognition, neuroscience, and related fields. The program stresses the development of computational and mathematical expertise, coupled with a practical grounding in empirical testing.

Affiliated Faculty

Faculty in the cognitive area include Richard Jagacinski, Gail McKoon, Alexander Petrov, Mark Pitt, Roger Ratcliff, Harvey Shulman, and Jim Todd. Their research interests spread across auditory perception, attention, psycholinguistics, visual perception, memory, categorization, control of action, analysis of neural recording data, and the effects of aging on cognitive performance.

Faculty in the quantitative area include Hal Arkes, Michael Browne, Bob Cudeck, Mike Edwards, Jay Myung, Tom Nygren, and Trisha Van Zandt. Their research interests are factor analysis, structural equation modeling, Bayesian analysis, model selection issues, judgment and decision making, neural network models, and models of cognitive processing.

Graduate Program

A major focus for graduate students is the development of their own individual research specializations. There is considerable flexibility in course requirements, and students are encouraged to obtain training that is appropriate for their topic area, whether in the psychology department or in other departments. The goal is the production of high quality research for publication in major journals.

Students are expected to meet standard requirements of the Psychology Department such as statistics (though some students pass out of some or all of this). They are expected to take quantitative courses such as Mathematical Psychology, Introduction to Mathematical Models, Neural Network Models, Memory and Cognition, and a selection of courses from the cognitive topic areas (Perception and Psychophysics; Human Performance; Learning, Memory, and Cognition; and High Level Cognition). They are also expected to take courses from outside the department as appropriate. These might include stochastic processes, time series analysis, neural network modeling, behavioral neuroscience, decision making, linguistics, and computer science.

Postdoctoral Program

Postdoctoral Fellows are funded through individual faculty research grants. The major aim is for a fellow to participate in high quality research and produce high quality publications. There are many courses in psychology and other fields for fellows to attend and many research meetings that bring speakers from outside as well as within the university.