



UNIVERSITY *of* CALIFORNIA • IRVINE

Department of Cognitive Sciences

Graduate Student Handbook  
(2008-09)

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## 1. Overview

The Department of Cognitive Sciences welcomes you to its Psychology Ph.D. graduate program. This pamphlet is designed to acquaint you with the Ph.D. program and some of the procedures specific to this department.

### ***Questions about graduate studies at UCI?***

UC Irvine has a number of policies concerning graduate studies. These can be found in the UC Irvine 2008-09 General Catalogue, which is available as a printed document or on the web in HTML ([www.editor.uci.edu/catalogue](http://www.editor.uci.edu/catalogue)) or PDF format ([www.editor.uci.edu/catalogue/08-09Catalogue.pdf](http://www.editor.uci.edu/catalogue/08-09Catalogue.pdf)). The Office of Graduate Studies describes Campus-wide graduate program policies in the Catalogue on pages 89-96.

The School of Social Sciences – of which the Department of Cognitive Sciences is a member department – houses a number of departments and research centers including the Institute for Mathematical Behavioral Sciences and the Center for Cognitive Neuroscience. In addition to the campus Office of Graduate Studies, the school has its own Graduate Office (<http://www.socsci.uci.edu/gradoffice/>) which manages many important administrative functions concerning graduate study in this department.

The department's Director of Graduate Studies is Professor Geoffrey Iverson. His office is on the third floor of Social Science Plaza A (SSPA) in Room 3129. He can be contacted by e-mail ([giverson@uci.edu](mailto:giverson@uci.edu)) or phone (949-824-4053). Professor Iverson is, beyond your advisor, perhaps the most valuable faculty member to graduate students. If any question comes up that your advisor cannot handle, try Professor Iverson.

### ***Who's in what building?***

Each arriving graduate student is assigned a faculty member as their graduate advisor. Department faculty members have their offices in either the Social Science Plaza A (SSPA) or Social Science Plaza B (SSPB) buildings. Labs are located in the Social Science Lab building (SSL) or in one of the plaza buildings.

While many students have their offices in their graduate advisor's lab, students can also request office space on the 6<sup>th</sup> floor of the Social Science Tower building (SST) for holding Teaching Assistant office hours. All incoming graduate students are assigned office space in the large 679 room. Maps of the campus may be found on the web (<http://www.uci.edu/campusmaps.shtml>).

Department administrative offices are located on the third floor of SSPB in rooms 3211, 3215, 3219 & 3221. A few of your first year courses will take place in the Cognitive Sciences Seminar Room, SSPB 3218, just across the hall from these offices.

### ***Where to find information about your courses?***

The Course Catalogue provides the official description of the Cognitive Sciences graduate program on pages 477-484. The Department website also describes the program (<http://www.cogsci.uci.edu/gradProgram.php>). The requirements for you as a graduate student matriculating in academic year 2008-09 are stated in the 2008-09 Catalogue, not in catalogues for any other year. The reason is that requirements change from year to year.

## 2. Useful Information

**Keys:** Keys to SSPA, SSPB, SSL, SST and your office and lab space can be obtained from Mario Nunez, Facilities Assistant, in SSPA 1185. There is a \$10 deposit for each key which will be refunded when you return your keys.

**Scantron Machines:** Craig Stone, Instructional Support Center Manager, maintains the School of Social Sciences scantron machines, located next to SSPA 3167, which is often used for TA duties.

**Computers:** Most faculty advisors provide some computing resources in their labs for research use. A computer lab for Social Sciences Graduate Students is also available on the 6<sup>th</sup> floor of SST (Room 604). These computers have SPSS statistics software which will be necessary for some first year coursework. NACS (<http://www.nacs.uci.edu>) maintains the campus computer network.

On their website you will find a number of resources including software, email information, and policies. UCI has wireless internet access covering most of the campus called UCINet Mobile Access. To use this network (or connect by wire), you must first register your computer's MAC address. Do this on the NACS website. Computers in the School of Social Sciences are maintained by Social Sciences Computing Services (<http://www.socsci.uci.edu/sscs/>) located in SST 165.

**Mailboxes:** Each graduate student has a mailbox located in SSPA room 3151 – the room next to the copy machines. Graduate mailboxes – like the faculty and staff mailboxes – are listed by last name. Please notify the department office if you can't locate yours.

**Libraries:** UCI has two main libraries, Langston Library and the Science Library. Your UCI student ID card serves as your library card but must be activated by visiting a library. You can access online journal subscriptions and databases through the library website. You must be using a computer with a campus IP address to access these resources. When you are off campus, you can access subscription journals by using Virtual Private Network (VPN) software attainable via the NACS website.

**Teaching Assistantships:** Teaching assistant assignments are coordinated by Graduate Office Manager John Sommerhauser (SSPA 5149, [jdsommer@uci.edu](mailto:jdsommer@uci.edu)). An e-mail announcement is sent out, and applications are submitted online. TAs are assigned schoolwide thus you might be assigned a TAship outside the department. When you apply, you will specify which courses you are interested in TAing.

*Please note that faculty members can also request specific TAs, so if you are particularly interested in a certain course, it is wise to contact the instructor ahead of time. Bear in mind, not all requests can be accommodated.*

**Payroll and Financial Issues:** Stipend checks are issued on the first of the month and delivered to the Social Sciences Graduate Office (located on the 5<sup>th</sup> floor of SSPA) unless you have direct deposit. If a stipend check is requested for any time other than the first of the month, and you do not have direct deposit, the check must be picked up in Financial Services, 101 Administration. If you have questions, Graduate Office Manager, John Sommerhauser handles most issues relating to TA and fellowship stipends.

**On Campus Housing:** If you are interested in living in on campus Graduate Housing, you can find information on the Graduate Housing website: <http://www.housing.uci.edu/graduate/>. Current Palo Verde Residents Council member John Pyles ([jpyles@uci.edu](mailto:jpyles@uci.edu)), a student in the department, is also happy to answer questions.

**Graduate Liaison:** Pernille Hemmer ([phegger@uci.edu](mailto:phegger@uci.edu)), a student in our graduate program, is the departmental graduate liaison. If you have any issues that you believe should be made known to the department office but feel uncertain about conveying them directly, talk to her. Pernille also helps to arrange graduate student lunches with visiting colloquium speakers and to organize grad students for the late-February visits by potential grad students.

### 3. First-Year Coursework

You are expected to take certain courses during your first year.

2008-09 Requirements	First Year		
	Fall	Winter	Spring
Colloquium	201A	201B	201C
Proseminar	202A		
Quantitative	203A	203B	203C
Computing	205A	205B	
Elective			

These courses are:

- (1) Psych 201A-B-C (1.3, 1.3, 1.4 units): The Cognitive Sciences Research Seminar. You are expected to enroll in this series during all quarters in residence *prior* to passage of the advancement-to-candidacy examination. This research seminar is known as the “Colloquium” and is held on Mondays at 4:00 pm in SSPA 2112;
- (2) Psych 202A (1 unit): Proseminar. This course will expose you to the work of the department faculty members;
- (3) Psych 203A-B-C\* (4, 4, 4 units): Quantitative Research Methods. A sequence that covers the areas of probability, statistics, and experimental design;
- (4) Psych 205A-B (4, 4 units): Computational Research Methods. A sequence that covers programming for experiments and data analysis; and
- (5) Elective(s): Various. You may also choose to take one or more additional elective courses during your first year, particularly if it is immediately relevant to one’s research (such as the fMRI series).

Suitable substitutes may be made with written approval of Graduate Director Iverson and the Professor responsible for the substituted course.

*\*Completion of the quantitative research methods sequence may be extended over two years if warranted by the background or needs of the student. Again, check with Graduate Director Iverson.*

Be certain to enroll in your graduate courses via WebReg **before** the end of the second week of class. There is a financial penalty if you fail to register on time.

<http://www.reg.uci.edu/registrar/soc/webreg.html>

A number of first-year students – you may be one of them - are supported by a teaching assistantship. Be careful not to overload yourself the first year with too much difficult coursework and teaching assistant duties.

### 4. Course Requirements BEFORE Advancing to Candidacy

You must take at least seven (7) more courses, beyond those required in the first year, before advancing to candidacy. Four (4) of these must be drawn from the Core Elective module (Psychology 210-219):

Psych 211	Attention and Perception
Psych 212	Learning, Memory and Knowledge Organization
Psych 213	Mind/Body Problem
Psych 214	Decision-Making and Problem-Solving
Psych 215	Language Sciences
Psych 216	Introduction to Cognitive Neuroscience
Psych 217	Vision
Psych 218	Hearing
Psych 219	Cognitive Development

Students must also take at least three (3) more electives that are normally selected from at least two of the following six modules:

210-229	Human Cognition
230-239	Methodologies and Models
240-249	Virtual Reality
250-259	Human Performance
260-269	Cognitive Neuroscience
270-289	Sensation and Perception

Additional advanced course work in other fields relevant to your interests can supplement the required courses.

To focus best on your graduate research in your second and subsequent years of study, you should consider signing up for Psychology 290 (Dissertation Research) and/or Psychology 299 (Individual Study) with your graduate advisor.

## 5. **Second-Year Talk**

You are expected to carry out theoretical/empirical research during the first two years. For many students, this research starts full tilt during the summer after the first year of study and continues through the second year. By the end of the second year, each student should have completed a research project of a scope and nature that is potentially publishable in a relevant journal. Each student is assigned a faculty advisor, and the advisor is responsible for assisting in the planning and in other facets of the project.

At the end of your second year, you are required to present a talk at the Cognitive Sciences Research Seminar (the Colloquium) based on your research project. If you don't know how to use Microsoft PowerPoint, learn it.

This talk is scheduled towards the end of the spring quarter of your second full year in the graduate program. Another forum for the second-year talk may be substituted with the written approval of Graduate Director Iverson.

If your talk is not already written up in paper form by the time you present it at the Colloquium, you should write it up ***immediately*** afterwards. By the end of the fall quarter following the second-year talk, you are required to write, submit and have approved a paper based on your research project. The paper must be approved by your advisor and the Director of Graduate Studies.

## 6. **Master's Degree**

Although the Department does not have an M.A. program, you may earn an M.A. degree in Psychology as part of the Ph.D. program.

Requirements are:

1. Complete the required course work as outlined above;
2. Present a talk and submit an approved paper, both based on empirical/theoretical research, as described above; and
3. Fulfill a computer-programming language requirement by completing satisfactorily the computational research methods sequence Psychology 205A-B, or by demonstrating proficiency in use of a programming language for cognitive sciences research as assessed by two faculty members and approved by the Graduate Director.

In order to be granted the Master's Degree, you need to complete the Advancement to Candidacy (Master's Degree) form available on the Office of Graduate Studies website at: <http://www.rgs.uci.edu/grad/students/forms.htm>.

Why should you do it? If you want to get some teaching experience at UCI during the summer and want to teach an upper-division course, you'll need this degree along with advancing to candidacy – see below. Coordinate with Graduate Director Iverson and with Graduate Office Manager John Sommerhauser to get your Master's degree application underway when the time comes AND make sure to provide a copy of the signed form to the department office.

## **7. Advancing to Candidacy**

There are three requirements for advancement to candidacy:

1. Meet the requirements listed above for the M.A. degree;
2. Form a five-member faculty committee selected according to Graduate Studies policy ([http://www.rgs.uci.edu/grad/students/masters\\_req.htm](http://www.rgs.uci.edu/grad/students/masters_req.htm)).
3. Advance to candidacy by the end of the fall quarter of your third year in the program.

When forming your committee, keep in mind that one of the faculty members **must** be an external member (i.e., have no formal affiliation with our department).

The committee will examine your knowledge of a topic which is determined in consultation with the committee. A written document describing your work on this topic must be submitted to the committee, in a timely fashion, prior to advancement.

You must demonstrate an understanding of the background and issues for the research topic and show sufficient preparation and creativity to undertake planning for a dissertation project (*e.g.*, by describing a possible experimental design or outline a possible theoretical development).

The form for Advancing to Candidacy is PhD Form I which can be downloaded at: <http://www.rgs.uci.edu/grad/students/forms.htm>.

## **8. Ph.D. Degree**

The requirements for the Ph.D. degree are:

1. Formally present and defend a written dissertation proposal to a committee of at least three members selected according to Graduate Studies requirements. The dissertation proposal presentation may take place as part of the examination for Advancement to Candidacy, in which case, that five-member committee will approve the dissertation proposal;
2. Have the proposal approved **prior** to the final dissertation defense (usually three months before the final defense to provide enough time for candidate to incorporate suggestions and changes required by the committee);
3. Defend the dissertation in a public colloquium (announced with at least one week's notice) **prior** to the approval of the final dissertation version; and
4. You must have fulfilled all requirements for the Ph.D. degree within three years after advancement to candidacy.

The form to obtain your Ph.D. degree is PhD Form II at: <http://www.rgs.uci.edu/grad/students/forms.htm>.

*The normal time for advancement to candidacy is three years. The normal time for completion of the Ph.D. is five years, and the maximum time permitted is six years.*

## **9. Concentration in Cognitive Neuroscience**

Students can also pursue a Ph.D. in Psychology with a concentration in Cognitive Neuroscience. This is an interdisciplinary field which studies the relation between mind and brain. With the development of non-invasive functional brain imaging techniques during the last two decades, the integration of cognitive and neural models of information processing has become a major focus in the field, and a major growth area within the Department's academic plan.

The program concentration will be administered by the Department of Cognitive Sciences and coordinated by the graduate director in concert with the Cognitive Neuroscience program advisor. Commensurate with the multidisciplinary nature of cognitive neuroscience we expect to admit students with a variety of undergraduate educational backgrounds. These include, but are not necessarily limited to, undergraduate degrees in psychology/cognitive science, neuroscience, biology, computer science, mathematics, and engineering. Students will have the opportunity to work closely with faculty from the Center for Cognitive Neuroscience ([www.ccns.uci.edu](http://www.ccns.uci.edu)).

***Requirements:***

Course Work: Students must complete 12 courses distributed as follows. The cognitive neuroscience core course Cog Sci 216, two (2) quantitative courses, drawn from the Cog Sci 203ABC sequence, one (1) computational course, drawn from the Cog Sci 205AB sequence, two (2) neuroscience methods courses drawn from Cog Sci 236, 265AB, two (2) cognitive sciences courses drawn from Cog Sci 210-219, two (2) neuroscience courses drawn from the Cog Sci 261-269 module, and two (2) electives.

Students must fulfill the Ph.D. program's computer-programming language requirement.

Concentration Exam. At the beginning of the Fall quarter of their second year, students will be required to take a written concentration exam. The exam will involve (1) a critical review of work in the student's area of research interest, and (2) written responses to specific questions provided by the student's committee members.

Advancement Exam. The advancement exam consists of a written research proposal in NIH NRSA Predoctoral Fellowship format, and an oral defense of the proposed research. The advancement committee will comprise the student's advisor plus four additional faculty members, one of whom will be from outside the program. Students are encouraged to advance by the end of their second year, and must advance by the end of the first quarter of their third year.

Dissertation. Students must submit a dissertation describing original publishable research and present a public defense of the dissertation as the final requirement of the Ph.D. Program.

## **10. Reminders**

*TA Quarter Limits:*

Many of you will serve as a TA during your graduate studies. You get a total of eighteen (18) quarters of TA support as long as you advance to candidacy for the PhD. Here's how it breaks down:

- You can TA up to a maximum of twelve (12) quarters prior to advancing for the Ph.D.
  - o If you hit this number and have not advanced, you **cannot** TA any additional quarters.
  - o The only exception that can be made is for a student to TA one (1) additional quarter – 13<sup>th</sup> quarter – as long as they're advancing during the same quarter;
- You can TA for six (6) more quarters once you advance for the Ph.D.

In case you're wondering: If you advance earlier than the 12<sup>th</sup> quarter, you still get eighteen (18) total quarters of support. For example, you can TA for eight (8) quarters, advance, and still have ten (10) quarters left of TA support. You're not penalized for advancing earlier.

*Normal Time to Degree:*

The normal time to obtain one's doctorate in this program is five years. Excellent performance is required throughout this period. Four years - amazing. Six is fine. Seven is not. Best of luck!

*Other Reminders:*

Success in the graduate program depends on refining your knowledge of the English language including reading, writing and speaking. Your specific research area often requires the high development of more specific skills like math, statistics, programming, software use and experimental design. You must develop these skills while acquiring expert knowledge of your research domain.

Among those most knowledgeable about the graduate program are other graduate students.

If you are thinking of an academic career, bear in mind that “publish or perish” starts now.

Presenting work at a conference will help you gain visibility among potential future employers. The School and the Department can provide some financial support when you present your work at a conference.

The School has a web page which describes sources of funding for graduate students in Cognitive Sciences: <http://www.socsci.uci.edu/gradoffice/gradextras/index.html>). Draw your advisor’s attention to any funding opportunity that you believe may be appropriate for you. Hard work is expected. You are often expected to work on things without being asked or told: develop independence.

## **11. Non-Discrimination Policy**

The University of California, in accordance with applicable Federal and State law and University Policy, does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, medical condition (cancer-related), ancestry, marital status, citizenship, sexual orientation, or status as a Vietnam-era veteran or special disabled veteran. The University also prohibits sexual harassment. This nondiscrimination policy covers admission, access, and treatment in University programs and activities, including the graduate program administered by the Department of Cognitive Sciences at the University of California, Irvine.

## **12. Department Faculty**

The department faculty members listed below are all eligible to advise you in your graduate research:

**Bill Batchelder**, Professor

*Mathematical models of learning and memory, mathematical psychology, and measurement*

**Bruce Berg**, Associate Professor

*Audition, auditory attention, psychophysics of complex sounds, computational hearing*

**Mike Braunstein**, Professor Emeritus

*Visual perception*

**Alyssa A. Brewer**, Assistant Professor

*Neuroimaging of visual perception, visual deficits, and neurological disorders*

**Charlie Chubb**, Professor

*Visual perception, mathematical modeling, histogram contrast analysis*

**Barbara Doshier**, Professor

*Human information processing, memory retrieval, attention, visual perception*

**Mike D’Zmura**, Professor

*Vision, hearing, language*

**Jean-Claude Falmagne**, Professor Emeritus

*Mathematical behavioral sciences*

**Emily Grossman**, Assistant Professor

*Visual perception and neuroimaging*

**Greg Hickok**, Professor

*Neuroanatomy of language, neural plasticity, neuroimaging, cognitive neuroscience*

**Don Hoffman**, Professor

*Machine and human vision, visual recognition, artificial intelligence, virtual reality, consciousness and cognition, shape from motion*

**Geoffrey Iverson**, Professor

*Mathematical psychology, psychophysics, statistics*

**Mary Louise Kean**, Professor Emerita

*Cognitive neuropsychology, biological foundation of higher mental processes*

**Jeff Krichmar**, Assistant Professor

*Computational Neuroscience, robotics*

**Michael Lee**, Associate Professor

*Mathematical and computational models of stimulus representation, categorization, memory, decision-making and problem solving*

**Duncan Luce**, Distinguished Professor Emeritus

*Axiomatic measurement, decision theory, psychophysics, response times*

**Virginia Mann**, Professor

*Reading ability: phoneme awareness, developmental dyslexia, phonological skills, early intervention, precocious readers; speech perception: context effects, cross-linguistic comparisons*

**Louis Narens**, Professor

*Measurement, logic metacognition*

**Lisa Pearl**, Assistant Professor

*Linguistics, computational linguistics, language development, language change, Bayesian models*

**Kourosh Saberi**, Professor

*Signal detection, psychophysics, cortical neuroscience, sensory genetics*

**Barbara Sarnecka**, Assistant Professor

*Cognitive development, language development, number concepts, conceptual change parallels between individual cognitive development, the historical development of science & mathematics*

**George Sperling**, Distinguished Professor

*Empirical studies of human information processing: short-term visual memory systems, attention, visual perception, 3D object recognition; mathematical, computational, and neural models of visual processes: light adaptation, temporal sensitivity contrast, detection motion and texture, perception, stereopsis, and attention. Brain imaging: EEG, MEG, fMRI.*

**Jon Sprouse**, Assistant Professor

*Linguistics, syntax, psycholinguistics*

**Ramesh Srinivasan**, Associate Professor

*Cognitive neuroscience, brain development, consciousness, perception, EEG, brain dynamics*

**Mark Steyvers**, Associate Professor

*Semantic influences in recognition and recall, computational models for knowledge extraction, processing dynamic decision making models, causal reasoning, Bayesian networks*

**William Watt**, Professor Emeritus

*Cognitive semiotics*

**Ted Wright**, Associate Professor

*Cognitive psychology, human motor control, Fitts task, aimed movements, handwriting immersive, virtual reality, 1/f noise, quantitative models*

**Jack Yellott**, Professor Emeritus

*Mathematical psychology, visual perception*

### **13. Affiliated Faculty**

Various faculty members of other departments are extended courtesy appointments by this Department. An affiliated faculty member can serve as your advisor, as long as there is a faculty member of our Department who can serve officially as your advisor. An affiliated faculty member cannot serve as an external member of your candidacy committee. Affiliated faculty members include:

**Larry Cahill**, Associate Professor, Neurobiology & Behavior

*Neural mechanisms of emotionally influenced memory*

**Beth Loftus**, Distinguished Professor, Psychology and Social Behavior & Criminology, Law & Society

*Human memory, memory and law, jury decision making*

**Gary Lynch**, Professor, Psychiatry & Human Behavior

*Cellular mechanisms of regional vulnerability in brain aging process and aging-related neurodegeneration, mechanisms of synaptic plasticity: LTP, glutamate receptors and cell adhesion molecules*

**David Lyon**, Assistant Professor, Anatomy and Neurobiology

*Visual cortex, pulvinar nucleus, orientation selectivity, neurophysiology and anatomy, optical imaging, modified rabies virus*

**Jim McGaugh**, Research Professor, Neurobiology & Behavior

*Neurobiology of learning and memory*

**Tugan Muftuler**, Assistant Professor in Residence, Radiological Sciences

*Magnetic resonance imaging*

**Kim Romney**, Research Professor, Anthropology

*Mathematical behavioral science, consensus analysis, quantitative anthropology*

**Mick Rugg**, Professor, Neurobiology & Behavior

*Human memory, EEG, fMRI, neuroimaging, aging*

**Arnold Starr**, Research Professor, Neurobiology & Behavior

*Neurological disorders affecting cognition, sensation and motor behaviors*

**Hal Stern**, Professor, Statistics

*Statistics, applications of statistics to biological and social sciences, sports and statistics*

**Jim Swanson**, Director, Child Development Center

*ADD, ADHD, child development*

**Fan-Gang Zeng**, Professor, Anatomy & Neurobiology

*Cochlear implants, auditory neuroscience, psychophysics, speech perception, auditory neuropathy*

## **14. Contact Information**

### *Department of Cognitive Sciences*

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### *School of Social Sciences*

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