

REQUIREMENTS FOR THE IBG INTERDISCIPLINARY CERTIFICATE

Eligibility: To be eligible for the IBG Interdisciplinary Certificate, students must complete the application for the BG Certificate Program AND be accepted into a PhD program or be a current PhD student in good standing.

Friday Journal Club: All students must participate in the weekly journal club and colloquia series at the Institute for Behavior Genetics. Each student must present at journal club at least three times (no more than once per semester) during the course of their training but yearly presentations are encouraged. At least one presentation should focus on the student's own research; preferably early in the training program. This presentation should not be used to present final dissertation work or as an exit colloquium.

NIMH Trainees: NIMH trainees are required to attend Psychiatry Grand Rounds at UC Denver. You are encouraged to attend 'several' talks of interest to you—but at least one per semester. Psychiatry Grand Rounds take place on Wednesdays at 12p at the Anschutz medical campus in Denver. See the UC Denver Department of Psychiatry website (<http://www.ucdenver.edu/academics/colleges/medicalschoo/departments/psychiatry/Pages/PsychiatryWelcome.aspx>) for the Grand Rounds schedule. Travel costs for attendance can be reimbursed from the NIMH training grant (trainees are encouraged to organize group attendance).

NIMH trainees also will organize a mini-conference every other year on the genetics of mental health. All NIMH trainees will present their research and also invite an external speaker who give a Plenary Lecture and review the training program.

I. Course Requirements:

1. Behavioral Genetics (PSYC 5102, 2 credits; Rhee, Carey).
2. Physiological Genetics (IPHY 5200, PSYC 5200, 3 credits; Stitzel).
3. Statistics (PSYC 5741, 4 credits; PSYC 5751; IPHY 5800, 5 credits; PSYC 5541, 4 credits; or other approved course). This must be a graduate-level course in statistics (of at least one semester), approved by the student's advisory committee.
4. Scientific Integrity/Ethics (PSYC 5112, 3 credits; UC Denver Pharmacology 7605, or other approved course).

Students also must complete two courses from the following:

1. Quantitative Genetics (PSYC 5122, 3 credits; Stallings).
2. Introduction to Physiology Genomics (IPHY 5102, 2 credits; Johnson; MCDB 5230, Gene Expression, 3 credits; MCDB 5471, Mechanisms of Gene Regulation in Eukaryotes, 3 credits).
3. Biometrical Methods in Behavioral Genetics (PSYC 5242, 3 credits; Hewitt).

4. Application of Bioinformatics and Genomics (IPHY 5262, PSYC 5262, 3 credits; Ehringer).
5. Advanced Statistical Genetics (IPHY 5300, 3 credits; Keller).
6. Neuropharmacology (NRSC 5132, 3 credits, Bachtell)
7. Behavioral Neuroscience

Examples of Behavioral Neurosciences courses are:

- NRSC 5100, Introduction to Neuroscience I, 2-5 credits
- NRSC 5110, Introduction to Neuroscience II, 3 credits
- NRSC 5032, Neurobiology of Learning and Memory, 3 credits
- PSYC 5052, Behavioral Neuroscience, 4 credits (may overlap with NRSC 5100)
- NRSC 5072, Clinical Neuroscience, 3 credits
- NRSC 5092, Behavioral Neuroendocrinology, 3 credits

Students must complete one course from the following seminar courses:

1. Genetics of Psychopathology (PSYC 7102, 2 credits; Rhee, Carey). **Note: this course is required of NIMH trainees.**
2. Genetics and Substance Use Disorders (PSYC 7102, 2 credits; Stallings).
3. Neurobiology of Addiction (NRSC 5545, 3 credits, Bachtell)

Note: Neuropharmacology, or one of courses 2 - 3 is required of NIDA trainees.

4. Benchmark Papers in Behavioral Genetics (PSYC 7102, 2 credits; Hewitt).
5. Developmental Psychopathology (PSYC 5453, 3 credits, Willcutt)
6. Methods in the Genetics of Complex Traits (PSYC 5541, 3 credits, Keller)
7. Population Genetics in the Modern Genomics Era (PSYC 7102, 2 credits; Keller)
8. Aging and Neurodevelopmental Disorders (IPHY 6010, 3 credits, Hoeffler)
9. Geroscience and Anti-Aging Medicine (IPHY 6010, 3 credits, Johnson)
10. Structural Equation Modeling (PSYC 5761, 3 credits, Friedman)
11. Advanced Topics in Structural Equation Modeling (PSYC 6761, 3 credits, Friedman)
12. Statistical Programming in R (PSYC 5541, 3 credits, Keller)
13. Other approved seminar courses on topics relevant to behavioral genetics

NOTE: As some courses can only be taught every other year, it is each student's responsibility to take relevant courses when offered. Some equivalent courses may be offered at the Health Sciences Center or other venues. Course substitutions may be requested -- see Petitions below.

Petitions: Deviations from the IBG Certificate requirements may be requested by petition to the student's advisory committee. Specific requests for course substitution, resolution of an ambiguity, etc., should be made by written petition. A petition may be approved by a majority vote of both the advisory committee and the IBG Training Committee. Disapproval of a petition may be changed to approval by a majority vote of the IBG faculty. Students with sufficient backgrounds may also test out of required courses 1-2 as specified by the course Instructors.

II. Teaching requirements

Each of the students in the IBG Training Program must TA for at least one semester. (As part of their general responsibilities for the development of the student, advisory committees may sometimes require additional teaching.)

III. General Requirements

IBG students are required to conduct their doctoral dissertation research on topics of direct relevance to animal or human behavioral genetics, under the supervision of an IBG faculty member. A training file for each student is maintained in the IBG office for tracking progress toward completion of program requirements. Each student is to assist in updating this file at least once per year.

Annual Progress Report. Each January students are required to prepare and submit an annual progress report in consultation with their faculty advisor. This report is to assess student progress towards the BG certificate and aid the Training Committee in identifying candidates for any open training grant slots.

Summer Report and Request for summer stipend support. Beginning in 2018, all students will be required to submit a summer research plan by April 1st. Students not on training grants will be required to complete an application for summer stipend support. All students will be expected to provide a summary of research accomplishments at the end of the summer.

Advisory Committee. Students, in consultation with their faculty advisor, should set-up an IBG Advisory Committee during their first year in the BG program. The committee should consist of 3 IBG Faculty Fellows (includes faculty advisor). Students should meet annually with the Advisory Committee to discuss research and training progress. Note: this committee is different than a comprehensive exam or thesis committee although members of the student's advisory committee often are also on the student's comprehensive exam and thesis committees. Results of the Advisory Committee meeting are incorporated into the student's training file by the Chairperson of the Advisory Committee.

SPECIFIC DEPARTMENTAL AND GRADUATE SCHOOL REQUIREMENTS IN ADDITION TO THOSE LISTED HERE ARE THE RESPONSIBILITY OF EACH STUDENT, IN CONSULTATION WITH HIS/HER ADVISORY COMMITTEE.

IV. Annual Presentations at IBG Orientation and IBG Mini-conference

Orientation. All continuing students are required to present a poster describing their research activity of the past year at the annual IBG Orientation—held each year in August (the last Friday before the beginning of the fall semester).

Mini-conference. Every spring, there is an IBG mini-conference that is organized by graduate students. All continuing students are expected to attend and present their research at this conference.

V. Exit Colloquium

All students are expected to do an exit colloquium at the conclusion of their training program. This presentation should be modeled as a 'job talk,' --not a repeat of the final defense.