

# BIOBEHAVIORAL HEALTH

<b>Graduate Program Head</b>	Thomas Gould
<b>Program Code</b>	BBH
<b>Campus(es)</b>	University Park (Ph.D., M.S.)
<b>Degrees Conferred</b>	Doctor of Philosophy (Ph.D.) Master of Science (M.S.) Dual-Title Ph.D. in Biobehavioral Health and Bioethics Dual-Title Ph.D. in Biobehavioral Health and Clinical and Translational Sciences Dual-Title Ph.D. in Biobehavioral Health and Social and Behavioral Neuroscience
<b>The Graduate Faculty</b>	View ( <a href="https://secure.gradsch.psu.edu/gpms/?searchType=fac&amp;prog=BBH">https://secure.gradsch.psu.edu/gpms/?searchType=fac&amp;prog=BBH</a> )

The graduate program in Biobehavioral Health (BBH) is an innovative, interdisciplinary graduate program within the College of Health and Human Development. The focus of the program is on the intersection of biological, psychological, behavioral, social, environmental, and cultural influences on health and disease throughout the lifespan. It is the fundamental principle of our department that an integrative approach to health research and health care holds the greatest potential to advance health. The program is designed to cultivate competence in basic, mechanistic, and applied research that addresses fundamental issues in health and prevention throughout the lifespan; we also provide training in the role of diversity and ethics in research, statistical and procedural research methods, and in university teaching. Graduates are prepared for research, teaching, or policy roles in academia (universities and medical schools), health care settings, private and public research laboratories, and government agencies.

There are special resources available to students in BBH that provide valuable training and support. Several are housed in BBH, including the Biomarker Core Lab and a specialized metabolic kitchen. BBH is also home to the Global Health Minor, which provides training in how to think critically about current public health challenges around the world. Furthermore, BBH is linked with many well-funded centers in the College, including the Prevention Research Center, the Methodology Center, the Center for Healthy Aging, the Clinical and Translational Science Institute, the Huck Institute of the Life Sciences, the Social Science Research Institute, and the Social, Life, and Engineering Imaging Center. State-of-the-art library, teaching, and computing resources are provided by the College and University.

## Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<https://gradschool.psu.edu/graduate-education-policies/>).

Scores from the Graduate Record Examinations (GRE) are optional. Choosing not to submit scores will not affect admissions decisions. When GRE scores are submitted, scores are considered as part of a holistic review process.

Applicants should have a minimum grade-point average of 3.00 (A=4.00) and three supporting recommendations. At the discretion of the graduate program, exceptions may be made to these requirements for students with special backgrounds, abilities, and interests. Admission will be offered to applicants who are the best qualified, in the judgment of the faculty, taking all factors in to account.

Entering students should have a basic background in biological sciences, the behavioral sciences, or a combination of the two. In addition, they should have a basic background in quantitative methods. In exceptional cases, superior students who do not meet these requirements may be admitted provisionally (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/provisional-admission/>), while correcting their deficiencies. This must occur during their first two semesters in the program.

## Degree Requirements

### Master of Science (M.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (<https://gradschool.psu.edu/graduate-education-policies/>)

BBH does not offer a terminal Master's Degree. A minimum of 33 credits at the 400, 500, 600, or 800 level is required, with at least 18 credits at the 500 and 600 level, combined. All M.S. degree candidates must complete a formal master's thesis or a scholarly paper. Students selecting the thesis option must complete an additional 6 credits of master's thesis research (BBH 600). Students selecting the scholarly paper option must complete an additional 6 credits of individual studies (BBH 596) and at least 18 credits at the 500 level. The master's thesis will typically describe original research. The scholarly paper may describe original research, but may also involve a substantial review of the literature, or a substantial description of a new research-related procedure. The choice of thesis or scholarly paper options will be made by the student in consultation with the adviser. The student's advisory committee judges the quality and acceptability of the scholarly paper or thesis. In the case of the scholarly paper, the paper must be accepted by the advisers and/or committee members, and the head of the graduate program. In the case of the master's thesis, the paper must be accepted by the advisers and/or committee members, the head of the graduate program, and the Graduate School.

Code	Title	Credits
<b>Required Courses</b>		
BBH 501	Biobehavioral Systems in Health and Development: Theory and Processes	3
BBH 502	Health: Biobehavioral Perspectives	3
BBH 503	Biobehavioral Systems in Health and Development: Processes and Integration	3
BBH 504	Behavioral Health Intervention Strategies	3
BBH 505	Behavioral Health Research Strategies	3
12 additional credits in methods individually designed in consultation with and with the approval of their adviser and committee		12
<b>Culminating Experience</b>		
BBH 600 or BBH 596	Thesis Research Individual Studies	6
<b>Total Credits</b>		<b>33</b>

## Doctor of Philosophy (Ph.D.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (<https://gradschool.psu.edu/graduate-education-policies/>)

All doctoral students must take the following courses to develop doctoral-level competence in biobehavioral health and one or more related specialized areas:

Code	Title	Credits
<b>Required Courses</b>		
BBH 501	Biobehavioral Systems in Health and Development: Theory and Processes	3
BBH 502	Health: Biobehavioral Perspectives	3
BBH 503	Biobehavioral Systems in Health and Development: Processes and Integration	3
BBH 504	Behavioral Health Intervention Strategies	3
BBH 505	Behavioral Health Research Strategies	3
	12 additional credits in research methods individually designed in consultation with the student's adviser and Ph.D. committee (and with approval of the PIC of the Graduate Program)	12
<b>Total Credits</b>		<b>27</b>

All doctoral students must demonstrate competency in college-level teaching by completing two semesters in the role of a teaching assistant; the professional development seminar provides support and mentoring to facilitate development of competency in college-level teaching.

Ph.D. degree requirements include successful completion of the following: approved graduate course work, English Competence requirements, a comprehensive examination, and a final oral examination (the dissertation defense). To earn the Ph.D. degree, doctoral candidates must write a dissertation that is accepted by the Ph.D. committee, the head of the graduate program, and the Graduate School.

## Dual-Titles

### Dual-Title Ph.D. in Biobehavioral Health and Bioethics

Requirements listed here are in addition to requirements listed in GCAC-208 Dual-Title Graduate Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-208-dual-titles/>).

#### Admission Requirements

Students must apply and be admitted to the graduate program in Biobehavioral Health and the Graduate School before they can apply for admission to the dual-title degree program in Bioethics. After admission to their primary program, students must apply for admission to and meet the admissions requirements of the Bioethics dual-title program. Refer to the Admissions Requirement section of the Bioethics Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/bioethics/>). Doctoral students must be admitted to the dual-title degree program in Bioethics prior to taking the qualifying exam in their primary graduate program.

#### Degree Requirements

Biobehavioral Health Ph.D. students may pursue additional training in bioethics through the dual-title Ph.D. program in Bioethics. To qualify for the dual-title degree, students must satisfy the requirements of the Biobehavioral Health Ph.D. program. In addition, students must complete the degree requirements for the dual-title in Bioethics, listed on the

Bioethics Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/bioethics/>). Within this framework, final course selection is determined by the student, their Biobehavioral Health adviser, and their Bioethics program adviser.

#### Qualifying exam

In accordance with Graduate Council policy, there will be a single qualifying examination for both the primary program and the dual-title program. At least one member of the qualifying exam committee must come from the Bioethics program. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. Dual-title graduate degree students may require an additional semester to fulfill requirements for both areas of study and, therefore, the qualifying examination may be delayed on semester beyond the normal period allowable.

#### Comprehensive exam

In addition to the general Graduate Council requirements for Ph.D. committees (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/phd-dissertation-committee-formation/>), the Ph.D. committee of a Biobehavioral Health and Bioethics dual-title doctoral degree student must include at least one member of the Bioethics Graduate Faculty. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. If the chair of the committee is not also a member of the Graduate Faculty in Bioethics, the member of the committee representing Bioethics must be appointed as co-chair. The faculty member (or members) affiliated with the Bioethics Program will be responsible for administering a portion of the comprehensive exam that will require the student to demonstrate an understanding of various theoretical and methodological approaches to bioethics, and an ability to apply them to issues and problems (including, where appropriate, practical problems) in their primary field.

#### Dissertation and dissertation defense

Students in the dual-title program are required to write and orally defend a dissertation on a topic that is approved in advance by their Ph.D. committee and reflects their original research and education in BBH and Bioethics. Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. The dissertation must be accepted by the Ph.D. committee, the head of the graduate program, and the Graduate School.

### Dual-Title Ph.D. in Biobehavioral Health and Clinical and Translational Sciences

Requirements listed here are in addition to requirements listed in GCAC-208 Dual-Title Graduate Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-208-dual-titles/>).

#### Admission Requirements

Doctoral students with research and educational interests in clinical and translational science may apply for the Dual-Title Ph.D. degree in Biobehavioral Health and Clinical and Translational Sciences following admission to the Graduate School and Biobehavioral Health graduate degree program. After admission to their primary program, students must apply for admission to and meet the admissions requirements of the CTS dual-title program. Refer to the Admissions Requirements section of the CTS Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/clinical-translational-sciences/>). Doctoral students must be admitted into the dual-title degree program in CTS prior to taking the qualifying examination in their primary graduate program.

## Degree Requirements

This dual-title degree program emphasizes interdisciplinary scholarship at the interface of basic sciences, clinical sciences, and human health. Students in the dual-title program are required to have two advisers from separate disciplines: one individual serving as the primary mentor in the graduate program in Biobehavioral Health and another individual serving as the secondary mentor in an area covered by the dual-title program who is a member of the Clinical and Translational Sciences faculty.

To qualify for the dual-title degree, students must satisfy the degree requirements for the degree they are enrolled in BBH, listed above. In addition, students must complete the degree requirements for the dual-title in CTS, listed on the CTS Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/clinical-translational-sciences/>).

In accordance with Graduate Council policy, the qualifying examination committee must include at least one member of the Clinical and Translational Sciences Graduate Faculty. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. There will be a single qualifying examination which will include content from both the Graduate Program in Biobehavioral Health and the Clinical and Translational Sciences programs. Dual-title graduate degree students may require an additional semester to fulfill requirements for both areas of study and, therefore, the qualifying examination may be delayed on semester beyond the normal period allowable.

In addition to the general Graduate Council requirements for Ph.D. committees (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-602-phd-committee-formation/>), the Ph.D. committee must include at least one member of the Clinical and Translational Sciences Graduate Faculty. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. If the chair of the committee is not also a member of the Graduate Faculty in Clinical and Translational Sciences, the member of the committee representing Clinical and Translational Sciences must be appointed as co-chair. The fields of Biobehavioral Health and Clinical and Translational Sciences will be integrated in the student's comprehensive examination. The CTS representative on the student's Ph.D. committee will develop questions for and participate in the evaluation of the comprehensive examination.

All students are required to conduct dissertation research that contributes fundamentally to the fields of Biobehavioral Health and Clinical and Translational Sciences. Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. The dissertation must be accepted by the Ph.D. committee, the head of the graduate program, and the Graduate School.

## Dual-Title Ph.D. in Biobehavioral Health and Social and Behavioral Neuroscience

BBH doctoral students interested in having a degree that reflects interdisciplinary training in social and behavioral neuroscience as relevant to the domains of research expertise within BBH (e.g. integrating neuroscience techniques and perspectives to understanding integrative or interactive influences of biological, behavioral, psychological, sociocultural, and environmental variables on health across time scales and levels of analysis), may apply to pursue a dual-title Ph.D. in BBH and Social and Behavioral Neuroscience.

Social behavioral neuroscience reflects the study of how brain development and function influence, and are influenced by, social,

environmental, and behavioral variables. The dual-title Ph.D. program provides students with additional training in an integrative neuroscience program in order to enable them to pursue innovative interdisciplinary research with intellectual sophistication.

## Admission Requirements

Students must apply and be admitted to the graduate program in BBH and the Graduate School before they can be admitted to a dual-title degree program. Applicants interested in the dual-title degree program may note their interest in their applications to BBH. Students must apply and be admitted to the dual-title degree program in Social and Behavioral Neuroscience prior to taking the qualifying exam and must be in good standing in the BBH program. Students admitted to the BBH program will be admitted to the dual-title program in Social and Behavioral Neuroscience upon the recommendation of a Social and Behavioral Neuroscience Program faculty member in BBH. Doctoral students must be admitted into the dual-title degree program in Social and Behavioral Neuroscience no later than the end of the fourth semester (not counting summer semesters) of entry into the graduate major program.

Additional admissions requirements are listed in the Admissions Requirements section of the Social and Behavioral Neuroscience Bulletin page (<https://bulletins.psu.edu/graduate/programs/majors/social-behavioral-neuroscience/>).

## Degree Requirements

To qualify for the dual-title degree, students must satisfy the requirements of the Ph.D. in BBH, listed above. In addition, students pursuing the dual-title Ph.D. in BBH and Social and Behavioral Neuroscience must complete the degree requirements for the dual-title Social and Behavioral Neuroscience Ph.D., listed on the Social and Behavioral Neuroscience Bulletin page (<https://bulletins.psu.edu/graduate/programs/majors/social-behavioral-neuroscience/>).

The Qualifying Examination requirement shall be satisfied by one of the following:

1. Ideally, a single Qualifying Examination that incorporates content from both Biobehavioral Health and Social and Behavioral Neuroscience is preferred. Dual-title degree students may request an additional semester to fulfill requirements for both areas of study and, therefore, the Qualifying Exam may be delayed one semester beyond the normal period allowable. The Qualifying Examination committee for the dual-title degree will be composed of Graduate Faculty from BBH and must include at least one Graduate Faculty member from Social and Behavioral Neuroscience (SBN). Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. The chair of the qualifying examination committee must be a member of the Graduate Faculty and an affiliated member of the SBN program, or an affiliated member may be appointed as a co-chair. This requirement is more restrictive than the policy of the Graduate Council by decision of the BBH department.
  - a. In cases where the timing of the Qualifying Examination in Biobehavioral Health precludes the inclusion of the dual-title, an examination demonstrating proficiency in Social and Behavioral Neuroscience may occur at a later time, but no later than the end of the fourth semester (not counting summer semesters) of entry into the major doctoral program. In cases where separate Qualifying Examinations are administered, Graduate Faculty from BBH will administer the BBH Qualifying Examination, and a separate SBN Qualifying Examination will occur by the end of the fourth semester that will be administered by a

committee that will include at least two Graduate Faculty from BBH and at least one Graduate faculty from SBN.

2. With prior approval from the SBN Professor-in-Charge, the dual-title program in Social and Behavioral Neuroscience may allow the Qualifying Examination in Biobehavioral Health alone to satisfy the requirements for the dual-title program.

In addition to the general Graduate Council requirements for Ph.D. committees (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-602-phd-committee-formation/>), the Ph.D. committee of a dual-title doctoral degree student must include at least two members of the Social and Behavioral Neuroscience Graduate Faculty. This requirement is more restrictive than the policy of the Graduate Council by decision of the BBH department. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. If the chair of the committee representing BBH is not also a member of the Graduate Faculty in Social and Behavioral Neuroscience, the member of the committee representing Social and Behavioral Neuroscience must be appointed as co-chair. It is expected that the outside member of the Ph.D. committee serves as the second Social and Behavioral Neuroscience representative. Exceptions (e.g. having both Social and Behavioral Neuroscience committee members from within the home department) must be approved by the Social and Behavioral Neuroscience Steering committee. The Social and Behavioral Neuroscience representative on the student's Ph.D. committee will develop questions for and participate in the evaluation of the comprehensive examination.

Ph.D. candidates must complete a dissertation on a topic that reflects their original research and their education in both BBH and Social and Behavioral Neuroscience. Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. In order to earn the dual-title Ph.D. degree, the dissertation must be accepted by the Ph.D. committee, the head of the graduate program, and the Graduate School, and the student must pass a final oral examination (the dissertation defense).

## Minor

A graduate minor is available in any approved graduate major or dual-title program. The default requirements for a graduate minor are stated in Graduate Council policies listed under GCAC-600 Research Degree Policies (<https://gradschool.psu.edu/graduate-education-policies/>) and GCAC-700 Professional Degree Policies (<https://gradschool.psu.edu/graduate-education-policies/>), depending on the type of degree the student is pursuing:

- GCAC-611 Minor - Research Doctorate (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-611-minor-research-doctorate/>)
- GCAC-641 Minor - Research Master's (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-641-minor-research-masters/>)
- GCAC-709 Minor - Professional Doctorate (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-709-professional-doctoral-minor/>)
- GCAC-741 Minor - Professional Master's (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-741-masters-minor-professional/>)

## Student Aid

Graduate assistantships available to students in this program and other forms of student aid are described in the Tuition & Funding (<https://gradschool.psu.edu/graduate-funding/>) section of The Graduate School's website. Students on graduate assistantships must adhere to the course load limits (<https://gradschool.psu.edu/graduate-education-policies/gsad/gsad-900/gsad-901-graduate-assistants/>) set by The Graduate School.

## Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

Biobehavioral Health (BBH) Course List (<https://bulletins.psu.edu/university-course-descriptions/graduate/bbh/>)

## Learning Outcomes

### Master of Science (m.S.)

1. **KNOW** - Graduates will be able to demonstrate understanding of the literature regarding biological, psychological, sociocultural, ethical, behavioral, and environmental influences on various health outcomes and related phenomena.
2. **KNOW** - Graduates will be adequately proficient methodologically so as to comprehend the results of scientific literature encompassing these areas and to be able to conduct statistical analyses appropriately for their Master's paper or thesis if that paper or thesis includes empirical analyses.
3. **APPLY/CREATE** - Graduates will be able to review the relevant literature and generate ideas for novel research questions.
4. **COMMUNICATE** - Graduates will be able to write articles suitable for submission for publication in a peer reviewed journal.
5. **THINK** - Graduates will be able to think critically about research regarding biological, psychological, sociocultural, ethical, behavioral, and environmental influences on various health outcomes and relevant phenomena.
6. **PROFESSIONAL PRACTICE** - Graduates will demonstrate leadership, professionalism, and the highest ethical standards and values.

### Doctor of Philosophy (Ph.D.)

1. **KNOW** - Graduates will be able to demonstrate mastery of the literature regarding biological, psychological, sociocultural, ethical, behavioral, and environmental influences on various health outcomes and related phenomena.
2. **KNOW** - Graduates will be methodologically proficient so as to comprehend (and contribute to) the results of a broad scientific literature encompassing these areas.
3. **APPLY/CREATE** - Graduates will be able to review the relevant literature and generate ideas for novel research questions.
4. **APPLY/CREATE** - Graduates will be able to design a research plan to answer novel research questions that move the field forward and carry it out to completion.
5. **COMMUNICATE** - Graduates will be able to write articles suitable for publication in top tier peer review journals.

6. **COMMUNICATE** - Graduates will be able to present the results of their research in a clear and concise manner to an audience in a professional society meeting.
7. **COMMUNICATE** - Graduates will be able to write research grant proposals to external funding agencies (e.g., NIH, NSF, or foundations).
8. **THINK** - Graduates will be able to think critically about research regarding biological, psychological, sociocultural, ethical, behavioral, and environmental influences on various health outcomes and relevant phenomena.
9. **PROFESSIONAL PRACTICE** - Graduates will demonstrate leadership, professionalism, and the highest ethical standards and values.
10. **PROFESSIONAL PRACTICE** - Graduates will be adequately prepared to apply for jobs in their field after graduating from our program.

## Contact

<b>Campus</b>	University Park
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<b>Program Website</b>	View ( <a href="https://hhd.psu.edu/bbh/biobehavioral-health-graduate-program/">https://hhd.psu.edu/bbh/biobehavioral-health-graduate-program/</a> )