Title of Degree or Credit-Bearing Certificate (e.g., Bachelor of Arts in History):

Bachelor of Arts in Philosophy & Neuroscience

1. Please provide the name, title, email address, and phone number of the primary contact person for this academic program:

Paul Katsafanas, Director of Undergraduate Studies, Department of Philosophy; pkatsa@bu.edu; 617-353-4581.

2. Please briefly describe the proposed new degree:

The Department of Philosophy and the Undergraduate Program in Neuroscience propose to establish a new joint BA in Philosophy & Neuroscience. The proposed program is a natural combination of empiricism and reflective practice, drawn respectively from a solidly scientific discipline and from intellectual habits deeply rooted in humanist traditions. A rigorous foundation in key areas of philosophy will counterbalance the tendency for some undergraduate science students to think reductively, while grounding broader philosophical questions in empirical and mechanistic principles. The 18-course major will include core and elective courses in the biological, physical, and computational sciences; logic; moral, political and legal philosophy; philosophy of mind and science; and metaphysics and epistemology, preparing students for a wide range of research and scholarship opportunities.

This proposal was approved by the Department of Philosophy by a vote of 9 to 0 at their meeting of July 9, 2015 and by the Undergraduate Neuroscience Program, by a vote of 16 to 1 on June 30, 2015.

3. Please provide a rationale for the proposed new degree:

The proposed Major in Philosophy & Neuroscience will enable students to employ cutting edge work
in the sciences to address seminal questions in philosophy. Neuroscience addresses a number of issues traditionally centered within Philosophy. What is consciousness? How should we understand agency? What is the nature of moral judgment? How should we understand perception? Empirical discoveries in neuroscience provide us with new ways of addressing these questions. At the same time, philosophical thinking enables students to question some of the theoretical commitments that animate studies in neuroscience: What is the nature of neuroscientific explanation? What philosophical concepts (personhood, self, agency, consciousness, and so forth) are employed in neuroscience? What understandings of these concepts are neuroscientists operating with? As these questions indicate, Philosophy and Neuroscience offer the opportunity for genuinely interdisciplinary study, with each field illuminating the other.

Ideally, undergraduate training in Philosophy combines expertise in the discipline itself with training in one or another related subject. Historically speaking, many disciplines have grown up from within or alongside Philosophy, so that a joint degree or double major in Philosophy and another field produces a more articulate, well-rounded undergraduate, one whose expertise is informed by reflective appreciation of the principles and historical traditions that often shape contemporary problems and debates. The undergraduate program in Philosophy at Boston University encourages joint majors, offering successful joint majors in Classics & Philosophy, Mathematics & Philosophy, Philosophy & Physics, Philosophy & Political Science, Philosophy & Psychology, and Philosophy & Religion. These are quite popular: in recent years, the average has been approximately 50 students in these joint majors and approximately 100 in the standard Philosophy major. Already there are 8 students who are pursuing double majors in Philosophy and Neuroscience, so the interest in this new joint major seems clear.

The proposed major would be distinguished in the Boston area and among peer plus institutions by the rigor and breadth of its offerings, its ties to broadly philosophical and foundational questions, and its focus on undergraduates. Most smaller colleges and other research universities are not able to compete with the research depth or offerings of this program.

The current proposal builds collaboratively on the University's existing strengths and courses, without need for new facilities or additional course offerings, and with an eye to furthering educational collaboration and research interactions among the participating academic departments and programs — a goal to be accomplished in part through events sponsored by related BU organizations (such as the Boston Colloquium for the Philosophy of Science). In terms of the distinctive academic approach of the proposed new program, it is important to emphasize that Philosophy of Mind is already a focus of existing courses in Philosophy (as can be seen in the course listings below). At present, students interested in such theoretical issues are being urged to take specific courses on the lists contained in this proposal, but they cannot emerge with a joint major. The new joint major will give them an explicitly designated and structured way to pursue these interests. More generally, students in Philosophy with an interest in philosophy of science and philosophy of mind will benefit from being exposed to the interplay between empirical findings and philosophical research, while Neuroscience undergraduates will have the opportunity to gain a broader perspective on their field, one that is sensitive to the historical and philosophical development of some of its leading ideas, allowing for explorations of the
fundamental issues in philosophy of mind and science.

4. Please describe how the proposed new degree advances the Strategic Plans of the department, school/college, and University:

The program is intended to serve the overarching aims for undergraduate education described in the Boston University Strategic Plan by developing a pathway for undergraduate liberal arts education that lies at the intersection of the humanities and the sciences, training undergraduates in the crucial skills of reasoning, argumentation, analysis, philosophical reflection, empirical study, and historical and cultural understanding.

5. Please list the program requirements for the proposed new degree (denote new courses in bold print):

The program would require eighteen courses, distributed as follows:

**Seven courses in Philosophy:**

1. One course in logic:
   
   CAS PH 160 (4 cr.)  Reasoning and Argumentation
   or
   CAS PH 360 (4 cr.)  Symbolic Logic

   PH 160 is offered both semesters and PH 360 is offered every spring.

2. One course in ancient philosophy:
   
   CAS PH 300 (4 cr.)  History of Ancient Philosophy

   PH 300 is offered both semesters.

3. One course in modern philosophy:
   
   CAS PH 310 (4 cr.)  History of Modern Philosophy

   PH 310 is offered both semesters.

4. One course in Moral, Political, or Legal Philosophy at or above the 200-level, chosen from the following approved courses (all 4 credits):

   CAS PH 234  Wealth, Ethics, and Liberty
   CAS PH 244  Ethics in Action
   CAS PH 250  Environmental Ethics
   CAS PH 251  Medical Ethics
   CAS PH 253  Social Philosophy
   CAS PH 254  Political Philosophy
   CAS PH 255  Philosophy of Law
   CAS PH 256  Philosophy of Gender and Sexuality
CAS PH 272 Science Technology and Values
CAS PH 350 History of Ethics
CAS PH 436 Gender, Race, and Science
CAS PH 450 Types of Ethical Theory
CAS PH 451 Contemporary Ethical Theory
CAS PH 452 Ethics of Health Care
CAS PH 453 Theories of Political Society
CAS PH 454 Community, Liberty, and Morality
CAS PH 455 Legal Philosophy
CAS PH 458 Crime and Punishment
CAS PH 459 Political and Legal Philosophy
CAS PH 481 Topics in the Philosophy of Law
CAS PH 485 Topics in Philosophy of Value

Over the past five years, an average of fourteen of these courses have been offered each year.

5. One course in philosophy of mind, chosen from the following (all 4 credits):

CAS PH 265 Minds and Machines
CAS PH 260 Knowledge and Reality
CAS PH 266 Mind, Brain and Self
CAS PH 443 Philosophy of Mind

Over the past five years, an average of three of these courses have been offered each year.

6. One course in philosophy of science:

CAS PH 270 (4 cr.) Philosophy of Science
or
CAS PH 487 (4 cr.) Topics in the Philosophy of Science

PH 270 is typically offered annually. PH 487 is offered approximately once every three years.

7. One additional philosophy course at the 400-level, which can include the following, as well as any 400-level PH course not used to satisfy requirements #4-6 above:

CAS PH 440 (4 cr.) Metaphysics
CAS PH 460 (4 cr.) Epistemology
CAS PH 463 (4 cr.) Philosophy of Language

At least eight 400-level Philosophy courses are typically offered each semester. At least one of PH 440, PH 460, and PH 463 has been offered every year.

Neuroscience Courses (11 courses)
8 – 11. Introductory neuroscience courses:

CAS NE 101 (4 cr.) Introduction to Neuroscience
CAS NE 102 (4 cr.) Introduction to Cell and Molecular Biology
This sequence of introductory courses provides a broad foundation in neuroscience. NE 101 is offered every fall and serves as a broad overview of the field. NE 102, offered every spring, provides a cellular approach to the nervous system and includes laboratory projects focused on anatomy and physiology of neurons. NE 202 is offered every spring and introduces neuroanatomy and the neurological basis of cognition. NE 203, offered every fall, covers the fundamentals of the nervous system and includes laboratory projects focused on animal behavior and electrophysiology.

12. One course in programming and statistics:
   
   NE/PS 212 (4 cr.) Introduction to MATLAB Programming for Research in Psychological & Brain Sciences
   
or
   an equivalent sequence of introductory statistics (MA 115/116 or MA 213/214)
   
   NE/PS 212 is offered every semester.

13. One course in general chemistry:
   
   CAS CH 171 (4 cr.) Principles of General Chemistry
   
or
   an equivalent two-semester sequence (CH 101/102, CH 109/110, or CH 111/112)
   
   CH 171 is offered every fall and is designed for students in the health sciences.

14 – 15. Two courses in physics:
   
   CAS PY 105 (4 cr.) Elementary Physics I
   CAS PY 106 (4 cr.) Elementary Physics II
   
or
   an equivalent two-semester sequence (PY 211/212, PY 241/242 or PY 251/252)

16. One course in calculus:
   
   CAS MA 121 or MA 123 (4 cr.) Calculus I

17 – 18. Two neuroscience electives, one from the Cellular/Molecular group and one from the Cognitive group:

   **Group 1: Cellular/Molecular electives (all 4 credits):**
   CAS NE/BI 230 Behavioral Endocrinology
   CAS NE/BI 445 Cellular and Molecular Neurophysiology
   CAS NE/BI 449 Neuroscience Design Lab
   CAS NE/BI 455 Developmental Neurobiology
   CAS NE/BI 481 Molecular Biology of the Neuron
   CAS NE/BI 520 Sensory Neurobiology
In addition, students would need to complete eight CAS required 4-credit courses:
- Two Writing Seminars: WR 100 and WR 150
- Four semesters of Foreign Language
- Two Divisional Studies: Social Sciences

Honors in Philosophy & Neuroscience. Students with a cumulative 3.3 GPA in all required courses for the joint major may elect to complete a two-semester Senior Thesis in Philosophy & Neuroscience during senior year. A student completing a project rooted in philosophy or whose primary thesis advisor is a member of the Department of Philosophy, will enroll in CAS PH 401 and 402 (fall/spring 4 cr. each); CAS NE 401 and 402 for a neuroscience project or under the mentorship of neuroscience faculty. At least one member of the thesis committee must come from the secondary discipline.

6. Please list program learning outcomes:

- Demonstrate the conceptual ability and the communication skills needed for intensive examination of questions concerning what is true, what is good and what is beautiful.
- Demonstrate familiarity with core questions in the main branches of philosophical inquiry (ethics and political philosophy, metaphysics and epistemology, logic) and sustain critical reflection on, and discussion of, those questions.
- Demonstrate acquaintance with the canonical works of both antiquity and modernity, as well as the basic issues and texts of contemporary philosophy.
- Defend their own views with strong arguments, but also remain open to disagreement and critique.
- Display curiosity about, and interest and engagement in, the world in which they live.
• Demonstrate mastery of the fundamentals of neuroscience spanning the breadth of the field, from the theoretical to the experimental, and across multiple levels of analysis;
• Demonstrate competency in quantitative reasoning (relating physical and mathematical principles to fundamental concepts in neuroscience)
• Demonstrate competency in evidence-based reasoning and experimental design

7. For master's or professional doctorate degrees, please describe what this program prepares students for after they have graduated:

n/a

8. Please describe how the proposed new degree relates to existing programs at the University:

There is no existing program with overlap. The closest degree program is the Philosophy & Psychology major. However, the Philosophy & Psychology major differs markedly from the proposed major in Philosophy & Neuroscience. Neuroscience is the study of the biological, physical, and chemical bases of phenomena that Psychology frames, observes, and describes. As a result, the proposed major differs from Philosophy & Psychology in three significant ways.

First, the proposed program is different in scope. Since modern Neuroscience represents the intersection of an enormous range of experimental, quantitative, and computational techniques, the proposed major provides a solid foundation in the natural, physical, chemical, and computational sciences. The Philosophy & Psychology major has no such aspirations.

Second, it has a different focus. The proposed major includes a four-course sequence focused solely on Neuroscience. Moreover, it requires a set of Philosophy courses that address some of the central philosophical puzzles that arise within neuroscience. The Philosophy & Psychology major, by contrast, is more open-ended; students are free to select from a wider range of courses in order to tailor the major to their interests.

Third, it has different goals. The Philosophy & Neuroscience major provides a sustained and focused investigation into a set of related questions about the mind. It enables students to address these questions with increasing depth and sophistication as they progress through the required courses. Students pursuing the Philosophy & Psychology major can take a similar approach, but are also free to take courses that are less closely related to one another. The Philosophy & Neuroscience major thus mandates a focus and depth of training that is not required by the Philosophy & Psychology program. As a result, these majors should appeal to different sets of students.

A detailed comparison of the two majors is given below.
Philosophy and Psychology requires 5 courses in Psychology:

1. PS 101 – General Psychology
2. One course in Psychology Group A (courses in perception, physiological psychology, learning, and cognition)
3. One course in Psychology Group B (courses in developmental, personality, social, and abnormal psychology)
4. One course in Psychology at the 300 level or higher
5. One course in Experimental Psychology

Philosophy and Neuroscience requires 6 courses in Neuroscience:

CAS NE 101 (4 cr.) Introduction to Neuroscience
CAS NE 102 (4 cr.) Introduction to Cell and Molecular Biology (lab)
CAS NE 202 (4 cr.) Introduction to Cognitive Neuroscience
CAS NE 203 (4 cr.) Principles of Neuroscience (lab)
Two neuroscience electives, one from the Cellular/Molecular group and one from the Cognitive group (listed above)

Philosophy and Psychology requires at least one Math/Statistics/Programming course:

Either [MA 115 and MA 116, Statistics I & II] or PS 211 Introduction to Experimental Design in Psychology

Philosophy and Neuroscience requires a total of two Math/Statistics/Programming courses:

CAS MA 121 (4 cr.) Calculus I
NE 212 (4 cr.) Introduction to MATLAB Programming for Research in Psychological & Brain Sciences

Whereas Philosophy and Psychology requires no science courses outside of Psychology, Philosophy & Neuroscience requires one course in Chemistry and two in Physics (see list above).

With regard to Philosophy courses, the two majors differ as follows:

Both majors require PH 300 and PH 310, which provide an overview of the history of philosophy.
Philosophy and Psychology requires four additional philosophy courses, distributed as follows:
Two courses from the following list: PH 239 (Emotions), PH 241 (Philosophy of Personality), PH 265 (Minds and Machines), PH 266 (Mind Brain Self), PH 270 (Philosophy of Science), PH 277 (Philosophy and Methods in Human Sciences), PH 426 (Phenomenology), PH 443 (Philosophy of Mind), PH 465 (Philosophy of Cognitive Science), PH 474 (Inductive Logic and Scientific Method), PH 477 (Philosophy of the Social sciences), or PH 487 (Topics in Philosophy of Science).

Two electives in Philosophy.

Philosophy and Neuroscience requires five additional philosophy courses, distributed as follows:
One course in Philosophy of Science
One course in Philosophy of Mind
One course in Logic
One course in Moral, Political, or Legal Philosophy
One 400-level elective

As this comparison indicates, the Philosophy & Neuroscience major would allow somewhat less flexibility in the choice of philosophy courses. The reason for this is simple: whereas multiple areas of philosophy relate to psychology, fewer center on concerns that would arise in neuroscience. In addition, students need a deeper grounding in certain areas of philosophy (such as logic) in order to engage with questions in neuroscience.

9. Please place the proposed program in the context of comparable programs at peer institutions:

47 other AAU institutions offer some form of a neuroscience major (BA/BS), minor, specialization within a major, emphasis, or certificate program. From this group, six neuroscience BA/BS degree-granting programs allow philosophy courses to count as electives toward the degree. Two of the 47 institutions, University of Arizona and Washington University in St. Louis, offer joint programs that require a mix of neuroscience and philosophy courses.

AAU Institutions offering a neuroscience major (BA or BS):

<table>
<thead>
<tr>
<th>University</th>
<th>Degree Name</th>
<th>Degree(s) Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indiana University Bloomington</td>
<td>Neuroscience</td>
<td>BS</td>
</tr>
<tr>
<td>Ohio State University</td>
<td>Neuroscience</td>
<td>BS</td>
</tr>
<tr>
<td>Purdue University</td>
<td>Brain and Behavioral Sciences</td>
<td>BS</td>
</tr>
<tr>
<td>Rutgers University</td>
<td>Cell Biology Neuroscience</td>
<td>BA</td>
</tr>
<tr>
<td>University of California, Davis</td>
<td>Neurobiology, Physiology, and Behavior</td>
<td>BS</td>
</tr>
<tr>
<td>University of California, Irvine</td>
<td>Cognitive Science</td>
<td>BS</td>
</tr>
</tbody>
</table>
University of California, Los Angeles
Degree Name: Neuroscience
Degree(s) Awarded: BS
University of California, San Diego
Degree Name: Physiology and Neuroscience
Degree(s) Awarded: BS

University of Florida
Degree Name: Neurobiological Studies
Degree(s) Awarded: BS

University of Kansas
Degree Name: Behavioral Neuroscience
Degree(s) Awarded: BS

University of Michigan
Degree Name: Neuroscience
Degree(s) Awarded: BS

University of Minnesota
Degree Name: Neuroscience
Degree(s) Awarded: BS

University of Pittsburgh
Degree Name: Neuroscience
Degree(s) Awarded: BS

University of Texas, Austin
Degree Name: Neuroscience
Degree(s) Awarded: BS

University of Virginia
Degree Name: Neuroscience
Degree(s) Awarded: BA

University of California, Santa Barbara
Degree Name: Biopsychology
Degree(s) Awarded: BS

University of Colorado, Boulder
Degree Name: Neuroscience
Degree(s) Awarded: BA

Brown University
Degree Name: Neuroscience
Degree(s) Awarded: BS

Case Western Reserve University
Degree Name: Cognitive Science
Degree(s) Awarded: BA

Columbia University
Degree Name: Neuroscience and Behavior
Degree(s) Awarded: BA

Emory University
Degree Name: Neuroscience and Behavioral Biology
Degree(s) Awarded: BS

Johns Hopkins University
Degree Name: Neuroscience
Degree(s) Awarded: BS

MIT
Degree Name: Brain and Cognitive Sciences
Degree(s) Awarded: BS

New York University
Degree Name: Neural Science
Degree(s) Awarded: BS

Northwestern University
Degree Name: Neuroscience
Degree(s) Awarded: BA

Princeton
Degree Name: Neuroscience
Degree(s) Awarded: BA

Tulane University
Degree Name: Neuroscience
Degree(s) Awarded: BS

University of Southern California
Degree Name: Neuroscience
Degree(s) Awarded: BA/BS

Yale University
Degree Name: Cognitive Science
Degree(s) Awarded: BA/BS

University of Pennsylvania
Degree Name: Biological Basis of Behavior
Degree(s) Awarded: BA
University of Rochester
Degree Name: Biological Sciences: Neuroscience
Degree(s) Awarded: BS
AAU Peer Institutions offering a specialization within a major, a neuroscience track or emphasis, or a certificate program:

Stony Brook University
Degree Name: Biology with a specialization in Neuroscience
Degree(s) Awarded: BS

University of Iowa
Degree Name: Biology, Neurobiology Track
Degree(s) Awarded: BS

University of California Berkeley
Degree Name: Biology, Molecular & Cell Biology, Neurobiology Emphasis
Degree(s) Awarded: BA

Carnegie Mellon University
Degree Name: Biological Sciences, Neuroscience Track
Degree(s) Awarded: BS

Cornell University
Degree Name: Biology with a concentration in Neurobiology and Behavior
Degree(s) Awarded: BA/BS

University of Chicago
Degree Name: Biological Sciences with a specialization in Neuroscience
Degree(s) Awarded: BS

AAU Peer Institutions offering a neuroscience minor:

University of Maryland
Degree Name: Neuroscience
Degree(s) Awarded: minor

Rice University
Degree Name: Neuroscience
Degree(s) Awarded: minor

AAU Peer Institutions offering a neuroscience major (BA/BS) with philosophy courses counted as electives toward the major:

Michigan State
Degree Name: Neuroscience
Degree(s) Awarded: BS
Philosophy courses:
  Intro Philosophy
  Philosophy of Mind
University of Washington
Degree Name: Neurobiology
Degree(s) Awarded: BS
Philosophy courses:
  Philosophical Issues in the Cognitive Sciences
  Philosophy of Biology
  Philosophy of Physical Science

Brandeis University
Degree Name: Neuroscience
Degree(s) Awarded: BA/BS
Philosophy courses:
  Neurophilosophy

Duke University
Degree Name: Neuroscience
Degree(s) Awarded: BA/BS
Philosophy courses:
  Philosophy of Mind

Harvard University
Degree Name: Neurobiology (with an option for certificate in Mind/Brain/Behavior)
Degree(s) Awarded: BA
Philosophy courses (for MBB certificate):
  Introduction to the Problems of Philosophy
  Introduction to Philosophy of Psychology
  Philosophy of Mind

Vanderbilt University
Degree Name: Neuroscience
Degree(s) Awarded: BS
Philosophy courses:
  Philosophy and the Natural Sciences
  Philosophy of Mind

**AAU Peer Institutions offering a neuroscience major (BA/BS) with both philosophy and neuroscience courses required:**

The University of Arizona
Degree Name: Neuroscience and Cognitive Science, Neuroscience Track
Degree(s) Awarded: BS
Foundation Courses
  1. Intro Biology I
  2 - 3. General Chemistry I & II
  4 - 5. Intro Physics I & II
  6. Calculus I
7. Introduction to Psychology
8. Consciousness & Cognition
9. Statistics
10. Intro Programming
11. Fundamentals of Neuroscience & Cognitive Science
12. Organic Chemistry I

Major/Elective Courses:
13. Cellular Neurophysiology
14 Methods in Cognitive Science
15. Methods in Neuroscience
16. Issues & Themes in Cognitive Science
17. Molecular & Cellular Bio of Neurons
18. Systems Neurophysiology
19 - 23. Five courses from one of the following emphasis areas: Philosophy of Mind, Computation, Cognition, Development & Aging, Language & Communication, Neurobiology

Degree Name: Neuroscience and Cognitive Science, Cognitive Science Track
Degree(s) Awarded: BS
Foundation Courses:
1. Intro Biology I
2. General Chemistry I
3. Intro Physics I
4. Calculus I
5. Introduction to Psychology
6. Consciousness & Cognition
7. Statistics (multiple options)
8. Intro Programming (multiple options)
10. Symbolic Logic
11. Intro to Linguistics

Major/Elective Courses:
12. Cognitive Psychology
13. Any Philosophy course
14. Any Cognitive Psychology course
15. Any Computational Methods course
16. Any Linguistics course

Washington University, St. Louis
Degree Name: Philosophy-Neurosciences-Psychology, Cognitive Neuroscience Track
Degree(s) Awarded: BA
1. Intro to the Cognitive Sciences
2. Inquiry in the Cognitive Sciences
3. Logic, Problems in Philosophy, or Great Philosophers
4. Philosophy of Mind or Philosophy of Language
5. Philosophy elective
6. Intro to Psychology
7. Cognitive Psychology or Psychology of Language
8. Psychology elective
9. Principles of Biology or Biological Psychology
10. Principles of Nervous System
11. Cognitive Neuroscience
12-14. Three courses in Philosophy, Psychology, or Neuroscience
15. Capstone Project

Degree Name: Philosophy-Neurosciences-Psychology, Language, Cognition, Culture Track
Degree(s) Awarded: BA
1. Intro to the Cognitive Sciences
2. Inquiry in the Cognitive Sciences
3. Logic, Problems in Philosophy, or Great Philosophers
4. Philosophy of Mind or Philosophy of Language
5. Philosophy elective
6. Intro to Psychology
7. Cognitive Psychology or Psychology of Language
8. Psychology elective
9. Introduction to Linguistics
10. Human Evolution
11, 12. Two Language, Cognition & Culture courses
13-15. Three courses in Philosophy, Psychology, Anthropology, or Linguistics
16. Capstone Project

The Philosophy-Neuroscience-Psychology (PNP) program at Washington University in St. Louis is relatively well known among prospective students looking to combine their interests in the science and philosophy of mind through an integrated program. The University of Arizona’s program provides a stronger science foundation than the PNP program, though with less depth and central programmatic theme. With a strong foundation in the basic sciences (chemistry, calculus, physics) and philosophy (logic, ancient and modern philosophy), broad exposure to cellular neurobiology and cognitive neuroscience, and most importantly, opportunities through the curriculum and with our faculty to study a range of areas in philosophy of mind and science and neuroscience in greater depth, our program is deeply complementary as it provides a vehicle for questioning and examination, and empirical analysis of the very mechanisms that give rise to our contemplative nature. Our proposed program is, therefore, at once unique among our peers as a joint degree in science and philosophy, yet not without precedent.
10. Please list the program’s faculty:

<table>
<thead>
<tr>
<th>Philosophy</th>
<th>Psychological &amp; Brain Sciences</th>
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<tbody>
<tr>
<td>Bokulich, Alisa</td>
<td>Bullock, Daniel</td>
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<tr>
<td>Cao, Tian</td>
<td>Cherry, James</td>
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<td>Hopp, Walter</td>
<td>Cronin-Golomb</td>
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<td>Powell, Russell</td>
<td>Eichenbaum, Howard</td>
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<td>Hasselmo, Michael</td>
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<td>Neuroscience</td>
<td>Kantak, Kathleen</td>
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<td>Lipton, Paul</td>
<td>Liederman, Jacqueline</td>
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<td>Ling, Sam</td>
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<td>Biology</td>
<td>Somers, David</td>
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<td>Davison, Ian</td>
<td>Stern, Chantal</td>
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<td>Ho, Angela</td>
<td>Tarullo, Amanda</td>
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<tr>
<td>Lin, Jen-Wei</td>
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<td>Gavornik, Jeff</td>
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<td>Health Sciences (SAR)</td>
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<td>Bohland, Jason</td>
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<tr>
<td>Mathematics &amp; Statistics</td>
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<tr>
<td>Kramer, Mark</td>
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</tbody>
</table>

All faculty listed are committed to teaching core and elective courses that will count toward or are required for the joint degree program.

11. Please provide an administrative plan for the proposed new degree:

For administrative and staff support purposes, the major will be part of the Philosophy Department. The Philosophy Department will assign students to advisors, monitor the program, and maintain a web page. Faculty from Philosophy and Neuroscience will meet regularly to review the curriculum, keep course listings up to date, ensure that PH and NE courses are compatibly scheduled, and monitor students’ progress through the degree.

12. Please provide an advising plan for the proposed new degree:

Advising will be handled jointly by the Department of Philosophy faculty listed in Section 10 and Dr. Lipton.
13. For a proposed graduate program, please provide the admissions standards involved:

n/a

14. Please document any implications that the formation of the proposed new degree has on professional accreditation or licensure at the program or school/college level:

None.

15. Please provide the bulletin copy (exactly as it will appear) for the proposed new degree including program goals/outcomes:

**BA in Philosophy & Neuroscience**

The joint major in Philosophy & Neuroscience is a natural combination of reflective practice and empiricism, drawn respectively from intellectual habits deeply rooted in humanist traditions and from a solidly scientific discipline. The program includes courses in logic, moral, political, and legal philosophy, metaphysics, epistemology, philosophy of mind, and the biological, physical, and computational sciences. Core and elective courses introduce the skills required for in-depth exploration of fundamental questions concerning human nature. What is mind? What is consciousness? And how do they emerge from the intricate interplay of chemicals and electricity? The joint degree will appeal to students who expect to pursue graduate study in the cognitive or neurosciences, law school, medical school, education, public policy, communication, public health, or who generally enjoy asking both big and small questions that inform one’s own personal growth.

**Requirements**

A total of 18 courses are required, all completed with a grade of C or higher, and distributed as follows:

**Philosophy Courses (7)**

1. CAS PH 160 Reason and Argumentation or PH 360 Symbolic Logic
2. CAS PH 300 History of Ancient Philosophy
3. CAS PH 310 History of Modern Philosophy
4. One course in Moral, Legal, and Political Philosophy (CAS PH 234, 244, 250, 251, 253, 254, 255, 256, 272, 350, 436, 450, 451, 452, 453, 454, 455, 458, 459, 481, or 485)
5. One course in Philosophy of Mind (CAS PH 260, 265, 266, or 443)
6. CAS PH 270 Philosophy of Science or PH 487 Topics in Philosophy of Science
7. One CAS PH course at the 400 level, not used to satisfy any of the above degree requirements

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Neuroscience Courses (11)

8. CAS NE 101 Introduction to Neuroscience
9. CAS NE 102* Introduction to Cellular and Molecular Biology
10. CAS NE 202 Introduction to Cognitive Neuroscience
11. CAS NE 203* Principles of Neuroscience with Lab
12. CAS NE 212 Introduction to MATLAB Programming for Research in Psychological & Brain Sciences (or PS 211; or MA 115 and 116; or MA 213 and 214)
13. CAS CH 171 Principles of General Chemistry (or CH 101 and 102; or CH 109 and 110; or CH 111 and 112)
14. CAS PY 105 Elementary Physics 1 (or PY 211, 241, or 251)
15. CAS PY 106 Elementary Physics 2 (or PY 212, 242, or 252)
16. CAS MA 121 Calculus for the Life & Social Sciences 1 (or MA 123)
17. One upper-level Cellular/Molecular Neurobiology elective (Group 1)
18. One upper-level Cognitive Neuroscience elective (Group 2):

Group 1: Cellular/Molecular Neurobiology
CAS NE 230, NE322, NE 445*, NE 449*, NE 455, NE 481, NE 520, NE 525, NE 535, NE 542, NE 545, NE 554, NE 594, BI 599.

Group 2: Cognitive Neuroscience
CAS NE 234, NE 327, NE 333, NE 337, NE 338, NE 499, NE 521, NE 528, NE 529, NE 544, PS 222.

Courses marked with an asterisk (*) are neuroscience courses that contain a lab component.

Honors in Philosophy & Neuroscience. Students with a cumulative 3.3 GPA in all required courses for the joint major may elect to complete a two-semester Senior Thesis in Philosophy & Neuroscience during senior year. A student completing a project rooted in philosophy or whose primary thesis advisor is a member of the Department of Philosophy, will enroll in CAS PH 401 (fall) and PH 402 (spring); CAS NE 401 (fall) and NE 402 (spring) for a neuroscience project or under the mentorship of neuroscience faculty. At least one member of the thesis committee must come from the secondary discipline.

16. Please provide sample pathways through the new degree or certificate:

Sample schedules for students entering BU with no advanced credit:
17. If the new program includes a new course or courses, please indicate who will teach the course and how the rest of that faculty member’s course load will be affected (courses(s) redistributed to other faculty, taught less frequently, no longer taught, etc.). Please be specific about affected courses. This information should be reflected in the budget form that accompanies the proposal, e.g. the cost for a new faculty member to teach the new course or a redistributed course:

No new courses are required.

18. Please list other resources needed including new staff, IT, technology enhanced classrooms, office space, and other facilities. This information should be reflected in the budget:

No new resources are required.

19. What charges (tuition, fees, etc.) are to be applied to this program? How will the charges be structured?

<table>
<thead>
<tr>
<th>Tuition/Fee Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>
Examples:

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fulltime Tuition</td>
<td>$21,985</td>
</tr>
<tr>
<td>Graduate Student Services Fee</td>
<td>$145</td>
</tr>
<tr>
<td>Health and Wellness Fee</td>
<td>$160</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>Program Fee (bundled charge)</td>
<td>$27,985</td>
</tr>
<tr>
<td>Tuition component</td>
<td>$21,985</td>
</tr>
<tr>
<td>Fees component</td>
<td>$6,000</td>
</tr>
</tbody>
</table>

20. Please describe the proposed enrollment or the enrollment required to cover the start-up costs of the proposed new degree:

There is no start-up cost. The proposed degree will rely on existing courses and faculty.

21. Please submit a complete budget for the new program or credit-bearing certificate, using the appropriate budget template, even if no additional resources are needed.

NOTE: The Library Impact Statement is required for the review of a new degree program. Proposers should contact the Library as early in the proposal development process as possible.
Library Impact Statement
CAS Bachelor of Arts in Philosophy and Neuroscience

Overall Assessment – No Impact

The Boston University Libraries system currently offers an extensive collection of
digital and print assets that will serve this interdisciplinary program well. Librarian
selectors have assembled materials in philosophy and neuroscience over time in order to
serve these extant programs within CAS. Therefore, no impact on the BU Libraries budget is
anticipated.

The collection of philosophy resources include authoritative, classic databases like
Philosopher’s Index and JSTOR. Likewise, databases containing neuroscience research
literature are already available at BU, including Web of Science and ScienceDirect. Students
can find relevant and up-to-date articles from all of these databases, and literature that
discusses specifically the intersection of these two fields, directly with one search in the BU
Libraries Search system.

The library also holds subscriptions to e-journals in this interdisciplinary area. For
instance, the current issues of the journals Cognitive Science and Mind provide the full text
of scholarly articles. Significant books and e-books, such as Consciousness Theories in
Neuroscience and Philosophy of Mind and The Oxford Handbook of Philosophy and
Neuroscience, are also accessible.

Librarian selectors regularly review subscription databases and other paid
resources for cost and quality. The selectors also welcome suggestions from faculty for
additions to our collections over time. I am confident that the BU Libraries can help drive
success in this program without the immediate purchase of any major new resources.

Dan Benedetti
Head, Pickering Educational Resources Library
2 Silber Way
Boston, MA 02215

11/9/15