## SOCIAL, COGNITIVE, & AFFECTIVE NEUROSCIENCE, CERTIFICATE

The Graduate Certificate in Social, Cognitive and Affective Neuroscience (SCAN) program enables graduate students and professionals preparing for a wide range of careers to work knowledgeably with neuroscience. Our program’s aim is to supplement your education if you have expertise in areas other than neuroscience, enabling you to incorporate some of the concepts and methods of neuroscience into your work. The curriculum focuses on the aspects of neuroscience that have the most direct application to the understanding of human behavior, specifically social, cognitive and affective neuroscience.

For more information: https://neuroethics.upenn.edu/scan/

### Curriculum

#### Apply neuroscience to your field of interest

Penn's Graduate Certificate in Social, Cognitive and Affective Neuroscience (SCAN) is a four-course program that can be completed in one to two years. The required courses provide a strong grasp of neuroscience for non-neuroscientists, emphasizing those aspects of the field that are most relevant to understanding human behavior. The curriculum is composed of two foundational requirements and two electives.

Students meet individually with the program directors in September of their first year to discuss their goals and possible elective courses. To fulfill the requirements of the SCAN certificate, students are expected to earn a B or higher in every course.

### Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 547</td>
<td>Foundations of Social, Cognitive, and Affective Neuroscience</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 747</td>
<td>Contemporary Research Issues in Social, Cognitive and Affective Neuroscience</td>
<td>1</td>
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</tbody>
</table>

### Elective Courses

The remaining two courses are intended to strengthen your mastery of specific areas of neuroscience and its relation to your fields of interest. Electives are organized into three categories, shown below. For these electives, students may take two Advanced Neuroscience courses or one course from any of these three categories: Advanced Neuroscience, Neuroscience & Society, Bridging. Approved electives for the upcoming semester can also be viewed below.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 557</td>
<td>Neuroscience, Ethics &amp; Law</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 449</td>
<td>Seminar in Cognitive Neuroscience</td>
<td>1</td>
</tr>
<tr>
<td>MKTG 737</td>
<td>Introduction to Brain Science for Business</td>
<td>0.5</td>
</tr>
<tr>
<td>MKTG 850</td>
<td>Special Topics - Consumer Neuroscience 1</td>
<td>0.5</td>
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</tbody>
</table>

### Advanced Elective Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE 521</td>
<td>Brain-Computer Interfaces</td>
<td>1</td>
</tr>
<tr>
<td>BE 566</td>
<td>Networked Neuroscience</td>
<td>1</td>
</tr>
<tr>
<td>BIBB 421</td>
<td>Functional Imaging of the Human Brain</td>
<td>1</td>
</tr>
<tr>
<td>BIBB 430</td>
<td>Neurobiological Basis of Autism</td>
<td>1</td>
</tr>
<tr>
<td>BIBB 440</td>
<td>The Neuroscience behind the Addiction to Chocolate, Wine, Coffee and Tobacco</td>
<td>1</td>
</tr>
<tr>
<td>BIBB 475</td>
<td>Neurodegenerative Diseases</td>
<td>1</td>
</tr>
<tr>
<td>BIBB 482</td>
<td>Clinical Psychopharmacology</td>
<td>1</td>
</tr>
<tr>
<td>BIBB 585/ PSYC 539</td>
<td>Theoretical and Computational Neuroscience</td>
<td>1</td>
</tr>
<tr>
<td>CRIM 671</td>
<td>Violence: A Clinical Neuroscience Approach</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 473</td>
<td>Neuroeconomics</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 449</td>
<td>Seminar in Cognitive Neuroscience</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 447</td>
<td>Neurological Insights into Cognition and Behavior</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 449</td>
<td>Seminar in Cognitive Neuroscience</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 474</td>
<td>PSYC 474-301: Being Human; PSYC 474-601: Cultural Psychology</td>
<td>1</td>
</tr>
<tr>
<td>BIBB 442</td>
<td>Neurobiology of Learning and Memory</td>
<td>1</td>
</tr>
<tr>
<td>BIBB 480</td>
<td>Biological Basis of Psychiatric Disorders</td>
<td>1</td>
</tr>
<tr>
<td>COMM 880</td>
<td>The Social Neuroscience of Communication</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 600</td>
<td>Proseminar in General Psychology</td>
<td>1</td>
</tr>
<tr>
<td>BIBB 460/ PSYC 439</td>
<td>Neuroendocrinology Seminar</td>
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</tr>
<tr>
<td>BIBB 479</td>
<td>Neural Systems and Behavior</td>
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</tbody>
</table>
This category includes courses in the student’s home field or a closely related field that includes substantial neuroscience material. The availability of bridging courses varies by program and by year, and course eligibility depends on the syllabus used in a given year. Courses are approved on a case-by-case basis by the Advisory Board after reviewing the course syllabus.

**Neuroscience and Society**

<table>
<thead>
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<td>1</td>
</tr>
<tr>
<td>MKTG 737</td>
<td>Introduction to Brain Science for Business</td>
<td>0.5</td>
</tr>
<tr>
<td>COMM 880</td>
<td>The Social Neuroscience of Communication</td>
<td>1</td>
</tr>
<tr>
<td>BIOE 555</td>
<td>Bioethics and Technology</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 480</td>
<td>Seminar in Developmental Psychology</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 705</td>
<td>Neuroethics</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 744</td>
<td>Brain Development &amp; Society</td>
<td>1</td>
</tr>
<tr>
<td>PUBH 589</td>
<td>The Public Health Challenges of Alzheimer's Disease and Cognitive Aging</td>
<td>1</td>
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</tbody>
</table>

**Bridging**

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<tr>
<td>MKTG 850</td>
<td>Special Topics - Consumer Neuroscience</td>
<td>1</td>
</tr>
<tr>
<td>MKTG 737</td>
<td>Introduction to Brain Science for Business</td>
<td>0.5</td>
</tr>
<tr>
<td>MKTG 739</td>
<td>Visual Marketing</td>
<td>1</td>
</tr>
<tr>
<td>LAW 705</td>
<td>Mental Health Law</td>
<td>3</td>
</tr>
<tr>
<td>LAW 925</td>
<td>Freedom, Responsibility and Neuroscience</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 526</td>
<td>Philosophy of Psychology</td>
<td>1</td>
</tr>
</tbody>
</table>

**Other program requirements and opportunities**

Students meet individually with the program directors in September of their first year to discuss their goals and possible elective courses. To fulfill the requirements of the SCAN certificate, students are expected to earn a B or higher in every course. In addition to the four courses, it is a requirement to attend the annual half-day retreat (https://neuroethics.upenn.edu/scan/retreat/) while enrolled in the program.

The SCAN program makes study space available near the required course classrooms, with textbooks on reserve. Students may propose local neuroscientists as SCAN-sponsored lunch guests for informal conversation in this same area.

**Prerequisites**

There are no course prerequisites required to apply to the SCAN program. However, some of the elective courses that can be taken to fulfill the SCAN course sequence do have prerequisites. Some requirements are waived for SCAN students via a permit issued by the Department of Psychology. All permits for SCAN students are submitted at the end of the application period. At that time, you receive notification that you can register for the course.

Please e-mail us (penn-scan@sas.upenn.edu) if you have any questions about prerequisites and course registration.

1 MKTG 850 Special Topics - Consumer Neuroscience and MKTG 737 Introduction to Brain Science for Business must be taken together for one credit.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2021 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

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