Computational Neuroscience Track worksheet
(14 courses required or 15 for Honors)

Math and Statistics (3 courses)
☐ 3. Statistics 110

Computer Science (2 courses)
☐ 4. CS 50
☐ 5. CS 51 or 61

Foundational Biology (2 courses)
☐ 6. Any one of the following (courses with labs are underlined):

<table>
<thead>
<tr>
<th>LS 1a or LPSA</th>
<th>Chemistry, Molecular/Cell Bio, LS 1b Genetics, Genomics, Evolution</th>
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</thead>
<tbody>
<tr>
<td>LS 2</td>
<td>Evolutionary Human Physiology and Anatomy</td>
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<tr>
<td>MCB 60</td>
<td>Cell Biology, MCB 63 Biochemistry, MCB 64 Cell Biology,</td>
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<tr>
<td>MCB 65</td>
<td>Physical Biochemistry, MCB 68 Cell Bio &amp; Microscopy</td>
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<tr>
<td>OEB 50</td>
<td>Population Genetics, OEB 53 Evolutionary Biology</td>
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</table>

☐ 7. One approved 100-level HEB, MCB, OEB, or SCRB course (or any second course from the box above)

Neurobiology (5 courses)
☐ 8. Neuro 80: Neurobiology of Behavior
☐ 9. Neuro 105, Neuro 115, or Neuro 120
☐ 10. Additional Quantitative Elective:

<table>
<thead>
<tr>
<th>BME 130</th>
<th>Neural Control of Movement</th>
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<tbody>
<tr>
<td>MCB 131</td>
<td>Computational Neuroscience</td>
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<tr>
<td>Neuro 105</td>
<td>Systems Neuroscience, Neuro 115 Cellular Basis of Neuronal Function,</td>
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<tr>
<td>Neuro 120</td>
<td>Introductory Computational Neuroscience, Neuro 130 Visual Recognition</td>
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<tr>
<td>Neuro 140</td>
<td>Artificial and Biological Intelligence, Neuro 141 Physics of Sensory Systems</td>
</tr>
<tr>
<td>Psych 1401</td>
<td>Cognitive Computational Neuro</td>
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</tbody>
</table>


Modeling and Analysis (2 courses) Any two courses from our approved list:
https://www.mcb.harvard.edu/undergraduate/neuroscience/neuro-courses/?course-button=compneurotrack

☐ 13. ______________________
☐ 14. ______________________

Honors – optional
☐ 15. Neuro 91 Laboratory Research or LS100 Experimental Research or completion of a senior thesis
Computational Track Electives

The following list of classes count as modeling/analysis electives for students on the Computational Neuroscience Track. Additional courses may be petitioned for approval.

Stat 108: Computing Software
Stat 111: Theoretical Inference
Stat 121: Data Science
Stat 131: Time Series
Stat 139: Linear Models
Stat 171: Stochastic Processes
Stat 220: Bayesian Data Analysis
Stat 149: Generalized Linear Models

ENG-SCI/APM 115: Mathematical Modeling
ENG-SCI/APM 121: Intro to Optimization
ENG-SCI 155: Biological Signal Processing
ENG-SCI/APM 158: Feedback Control of Dynamical Systems

MCB 111: Mathematics in Biology
MCB 112: Biological Data Analysis
MCB 198: Advanced Math Techniques for Modern Biology
MCB 199: Statistical Thermodynamics and Quantitative Biology

APM 50: Intro to Applied Mathematics
APM 104: Series Expansions and Complex Analysis
APM 105: Ordinary and Partial Differential Equations
APM 107: Graph Theory and Combinatorics
APM 108: Nonlinear Dynamical Systems
APM 111: Intro Scientific Computing
APM 120: Applied Linear Algebra and Big Data

CS 108: Intelligent Systems: Design and Ethical Challenges
CS 109: Intro to Data Science
CS 121: Intro to Theory of Computation
CS 124: Data Structures and Algorithms
CS 125: Algorithms and Complexity
CS 143: Computer Networks
CS 181: Machine Learning
CS 182: Artificial Intelligence