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):

| LS 1a or LPSA | Chemistry, Molecular/Cell Bio, LS 1b Genetics, Genomics, Evolution |
| LS 2       | Evolutionary Human Physiology and Anatomy, HEB 1420 Human Anatomy |
| MCB 60     | Cell Biology, MCB 63 Biochemistry, MCB 64 Cell Biology, |
| MCB 65     | Physical Biochemistry, MCB 68 Cell Bio & Microscopy |
| OEB 50     | Population Genetics, OEB 53 Evolutionary Biology |

☐ 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:

| APMTH 226 | Neural Computation, BME 130 Neural Control of Movement |
| Neuro 105  | Systems Neuroscience, Neuro 115 Cellular Basis of Neuronal Function |
| Neuro 120  | Introductory Computational Neuroscience, Neuro 130 Visual Recognition |
| MCB 131   | Computational Neuroscience, Neuro 140 Artificial and Biological Intelligence |
| Neuro 141  | Physics of Sensory Systems, Psych 1401 Cognitive Computational Neuro |


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.

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  

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  

Psych 2030: Bayesian Data Analysis  

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