Applied Logic Concentration

Symbolic Systems majors completing the new Core requirements effective for 2020-2021 must complete the following requirements to qualify for a Concentration in Applied Logic. All courses must be taken for 3 units or more. Notes: Core requirements fulfilled by a course are noted in brackets "[]". "ASSR" denotes courses that fulfill the Advanced Small Seminar Requirement.

1. **Metalogic.**
   - PHIL 151: Metalogic (PHIL 251) [Formal Logic]

2. **Computability.** One of the following:
   - PHIL 152: Computability and Logic (PHIL 251) [Cross-Area Requirement] or

3. **Computational Approaches to Logic.** One of the following:
   - CS 151: Logic Programming [Cross-Area Requirement]
   - CS 157: Computational Logic [Formal Logic]

4. **Set Theory.**
   - MATH 161. Set Theory

5. **Integrative Requirement.** Must be completed no earlier than the Junior Year:
   - Any of the **Standard Options** for all Concentrations specified under the Core Capstone requirement, or
   - A **Concentration-Specific Integrative Course** -- a course that integrates the themes of the Concentration with the Core requirements. One of the following [with more options to be added as they are approved -- some options may be removed if they are included in the list of SYMSYS 195* project courses, in order to avoid redundancy with the Standard Options]:
     - CS 151: Logic Programming [Cross-Area Requirement]
     - CS 204: Computational Law
     - CS 227B: General Game Playing
     - CS 228: Probabilistic Graphical Models: Principles and Techniques
     - CS 242: Programming Languages
     - CS 254: Computational Complexity
     - CS 358A: Programming Language Foundations
     - LINGUIST 130A: Introduction to Semantics and Pragmatics (LINGUIST 230A) [Linguistic Theory, Cross-Area Requirement]
     - LINGUIST 230B: Advanced Semantics
     - PHIL 154: Modal Logic (PHIL 254) [Cross-Area Requirement]
- PHIL 162: Philosophy of Mathematics (PHIL 262)
- PHIL 351D: Measurement Theory [ASSR]
- PHIL 356C: Logic and Artificial Intelligence (CS 257) [ASSR]
- PHIL 359: Topics in Logic, Information and Agency [ASSR]
- PSYCH 204: Computation and Cognition: The Probabilistic Approach (CS 428) [Cross-Area Requirement]

6. **Contingent Electives.** If any of requirements 1-5 are fulfilled with courses taken for Core requirements, then additional approved Contingent Elective courses must be completed to total 5 courses beyond those that are taken for the Core. These electives can be one or more courses from any of the areas above, or which are approved for a Core requirement that the student has fulfilled with a different course, or any of the following:
   - CS 254B: Computational Complexity II
   - LINGUIST 230C: Advanced Topics in Semantics and Pragmatics
   - Additional courses may be added in the future