# Cognitive Science Major

1. **Foundation Requirement in Cognitive Science** (185:201; 4cr)

2. **Logical & Statistical Reasoning** (One Course from Each Column)

<table>
<thead>
<tr>
<th>Computational/Logical Reasoning</th>
<th>Statistical Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Introduction to Logic (730:201; 3cr)</td>
<td>• Methods in Cognitive Science (185:320; 3cr)</td>
</tr>
<tr>
<td>• Introduction to Logic (730:202; 4cr)</td>
<td>• Discrete Structures II (198: 206; 4cr)</td>
</tr>
<tr>
<td>• Computing for Math &amp; the Sciences (198:107; 3cr)</td>
<td>• Calculus I (640:135; 4cr) or Honors (640:191; 4cr)</td>
</tr>
<tr>
<td>• Introduction to Discrete Structures I (198:205; 4cr)</td>
<td>• Calculus II (640:136; 4cr) or Honors (640:192; 4cr)</td>
</tr>
<tr>
<td>• Mathematical Logic (640:461; 3cr)</td>
<td>• Calculus I for Mathematical &amp; Physical (640:151; 4cr)</td>
</tr>
<tr>
<td>• Introduction to Mathematical Reasoning (640:300; 3cr)</td>
<td>• Calculus I for Mathematical &amp; Physical (640:152; 4cr)</td>
</tr>
</tbody>
</table>

3. **Distributional requirements** (One Course from Three Columns)

<table>
<thead>
<tr>
<th>Cognitive Neuroscience</th>
<th>Decision Making</th>
<th>Language</th>
<th>Minds, Machines, &amp; Computation</th>
<th>Perception</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Brain, Mind &amp; Behavior (119:195; 3cr)</td>
<td>• Cognition &amp; Decision Making (185:301; 4cr)</td>
<td>• Meaning &amp; Numbering (185:330; 3cr)</td>
<td>• The Concept of ‘Concepts’ in Cognitive Science (185: 310; 3cr)</td>
<td>• Design &amp; Analysis of Computer Algorithms (198:344; 4cr)</td>
</tr>
<tr>
<td>• Fundamentals of Neurobiology (146:245; 3cr; for CBN majors)</td>
<td>• Intermediate Microeconomics Analysis (220:320; 3cr)</td>
<td>• Language &amp; Cognition (185: 340 (previously 185:410); 4cr)</td>
<td>• Introduction to Computer Science (198:111; 4cr)</td>
<td>• Sensation &amp; Perception (830:301; 3cr)</td>
</tr>
<tr>
<td>• Essentials of Cell Biology &amp; Neuroscience (146:295; 3cr)</td>
<td></td>
<td>• Introduction to Linguistic Theory (615:201; 3cr)</td>
<td>• Introduction to Artificial Intelligence (198: 440; 4cr)</td>
<td></td>
</tr>
<tr>
<td>• Data Structures (198:112, 4cr)</td>
<td></td>
<td>• Philosophy of Language (730:210; 3cr)</td>
<td>• Minds, Machines &amp; Persons (730:329; 3cr)</td>
<td></td>
</tr>
<tr>
<td>• Physiological Psychology</td>
<td></td>
<td>• Psychology of Language (830:351; 3cr)</td>
<td>Philosophical Aspects of Cognitive Science (730:360; 3cr)</td>
<td></td>
</tr>
<tr>
<td>• (830:313; 3cr)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. **Capstone Course** (One Course from the Following)

| Undergraduate Seminar (185:411; 4cr) | Research in Cognitive Science (185:395; 3cr) | Honors Research (185:495; 3cr) |
5. Select ONE track & complete at least 3 courses from that track listed below

**Cognitive Neuroscience**
- Behavioral & Neural Genetics (146:384; 3cr)
- Advanced Neurobiology I (146:445; 3cr)
- Advanced Neurobiology II (146:447; 3cr)
- Research Methods in Cognitive Science (185:320; 3cr)
- Advanced Topics in Cog Sci I (185:412; 3cr)
- Advanced Topics in Cog Sci: Cog Neuro (185:413; 3cr)
- Cognitive Neuroscience Through Case Studies (185:430; 4cr)
- Modeling & Simulation of Continuous Systems (198: 424; 4cr)
- Introduction to Artificial Intelligence (198:440; 4cr)
- Mathematical Models in the Social & Biological Sciences (640:338; 3cr)
- Minds, Machines & Persons (730:329; 3cr)
- Philosophical Aspects of Cognitive Science (730:360; 3cr)
- Philosophy of Mind (730:418; 3cr)
- Cognition (830:305; 3cr)
- Neuropsychology (830:310; 3cr)
- Advanced Topics in Psychobiology (830:410 or 411; 3cr)
- Neuropsychopharmacology (830:412; 3cr)
- Behavioral Pharmacology (830:463; 3cr)
- Introduction to Neural Processes - Biological & Artificial (14:125:440; 3cr)

**Language**
- **One from following:**
  - Syntax (615:305; 3cr)
  - Phonology (615:315; 3cr)
  - Semantics (615:325; 3cr)
  - Pragmatics (615:350; 3cr)
- **One from following:**
  - Meaning & Numbering (185:330; 3cr)
  - Advanced Topics in Cog Sci II (185:412; 3cr)
  - Advanced Topics in Cog Sci: Language (185:415; 3cr)
  - Philosophy of Language (730:420; 3cr)
  - Semantics of Language (730:421; 3cr)
  - Psychology of Language (830:313 or 615:371; 3cr)
  - Language Acquisition (830:353; 3 or 615:433; 3cr)
  - Language Acquisition (830:484; 3cr)
- **Additional electives**
  - Research Methods in Cognitive Science (185:320; 3cr)
  - Language & Cognition (185:340 previously 185:410; 4cr)
  - Introduction to French Syntax (420:333; 3cr)
  - Historical Linguistics (615:330; 3cr)
  - Morphology (615:411; 3cr)
  - Evolution of the Human Language Capacity (615:415; 3cr)
  - Language Typology (615:421; 3cr)
  - Experimental Methodologies in Language Acquisition (615:435; 3cr)
  - Linguistics & Cognitive Science (615:441; 3cr)
  - Phonetics (615:451; 3cr)
  - Current Issues in Second Language Acquisition (940:420; 3cr)
  - Spanish Syntax (940:421; 3cr)
  - Spanish Semantics (940:422; 3cr)
  - Spanish Phonetics & Phonology (940:362; 3cr)
  - Bilingualism in the Spanish-Speaking World (940:363; 3cr)

**Perception**
- Research Methods in Cognitive Science (185:320; 3cr)
- Advanced Topics in Cog Sci II (185:412; 3cr)
- Advanced Topics in Cog Sci: Perception (185:417; 3cr)
- Design & Analysis of Computer Algorithms (198:344; 4cr)
- Introduction to Artificial Intelligence (198:440; 4cr)
- Philosophy of Psychology (730:328; 3cr)
- Philosophical Aspects of Cognitive Science (730:360; 3cr)
- Sensation & Perception (830:301; 3cr)
- Physiological Psychology (830:313; 3cr)
- Topics in Visual Perception (830:480; 3cr)
- Visual Intelligence (185:401; 3cr)
- **One from following:**
  - Graph Theory (640:428; 3cr)
  - Mathematical Logic (640:461; 3cr)
  - Mathematical Theory of Probability (640:477; 3cr)

**Decision Making**
- Human Nature & Human Diversity (185:253; 4cr)
- Cognition & Decision Making (185:301; 4cr)
- Research Methods in Cognitive Science (185:320; 3cr)
- Advanced Topics in Cog Sci II (185:412; 3cr)
- Advanced Topics in Cog Sci: Decision Making (185:414; 3cr)
- Intermediate Microeconomic Analysis (220:320; 3cr)
- Behavioral Economics (220:480; 3cr)
- Game Theory & Economics (220:482; 3cr)
- Topics in Advanced Economic Theory (220:430; 3cr)
- Mathematical Models in Social Sciences (640:339; 3cr)
- Philosophy of Psychology (730:328; 3cr)
- The Logic of Decision (730:424; 3cr)
- Small Groups (830:326; 3cr)
- Abnormal Psychology (830:340; 3cr)
- Research Methods in Psychology (830:355; 3cr)
- Health Psychology (830:377; 3cr)
- Reasoning, Problem Solving, & Decision Making (830:408 or 409; 3cr)

**Minds, Machine, & Computations**
- Brain, Mind, & Behavior (119:195; 3cr; honors)
- Introduction to Neural Processes (125:405; 3cr)
- Research Methods in Cognitive Science (185:320; 3cr)
- The Concept of ‘Concepts’ in Cognitive Science (185:360; 3cr)
- Advanced Topics in Cog Sci II (185:412; 3cr)
- Advanced Topics in Cog Sci: MM&C (185:416; 3cr)
- Introduction to Discrete Structures I (198:205; 4cr)
- Introduction to Discrete Structures II (198:206; 4cr)
- Design & Analysis of Computer Algorithms (198:344; 4cr)
- Introduction to Artificial Intelligence (198:440; 4cr)
- Formal Languages & Automata (198:452; 3cr)
- Minds, Machines & Persons (730:329; 3cr)
- Philosophical Aspects of Cognitive Science (730:360; 3cr)
- Philosophy of Mind (730:418; 3cr)
- Cognition (830: 305; 3cr)

6. **Additional Requirements (All)**
- Four Cognitive Science Courses (185 credits)
- Grades of C or better must be earned in all courses counted towards the major.
- Two thirds of total credits must be 300 level+.
- Two thirds of total credits must be from School of Arts and Sciences.
- No more than 4 courses from Philosophy or Computer Science.
- No more than 3 courses from any other department.
- Minimum of 36 credits.
- Note: Courses used to satisfy the Distribution requirement cannot also be used to satisfy the Track elective requirements.

Students may declare the major using My Major (http://my.major.sas.rutgers.edu) after taking Intro to Cog Sci (185:201), one Computational/Logical course, & one Statistical Reasoning course.

For more information contact: undergrad@ruccs.rutgers.edu