HUMAN LANGUAGE TECHNOLOGY - GRADUATE CERTIFICATE

The explosive growth of the web and the vast improvements in computing power in the last decade have led to a strong need for education and research in human language technology. Human language technology is an interdisciplinary field that includes the following key technological and scientific areas:

- Computer speech recognition and understanding
- Natural language understanding and generation
- Text-based information retrieval
- Web-based dialog agents

CU Boulder’s interdisciplinary certificate in human language technology, offered jointly by the Institute of Cognitive Science; the Department of Computer Science; the Department of Linguistics; and the Department of Speech, Language and Hearing Sciences, provides a rich and broad background for students interested in computational tools for human language processing.

To learn more about the certificate, visit the Institute of Cognitive Science (https://www.colorado.edu/ics/graduate-programs/human-language-technology-certificate/) website.

Required Courses and Credits

The curriculum for the certificate consists of five different courses, as shown in the course table below. Three of these five required courses must be taken at the graduate level.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programming</td>
<td>One semester of programming required (waived for those with programming background).</td>
<td></td>
</tr>
<tr>
<td>CSCI 1300</td>
<td>Computer Science 1: Starting Computing</td>
<td>4</td>
</tr>
<tr>
<td>Core Courses</td>
<td>Choose three core courses from the list below; at least two must be outside the student’s home department and college.</td>
<td>9</td>
</tr>
</tbody>
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Designing and Using Interactive Language Systems

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 4402/5402</td>
<td>(Human Language Technology Laboratory)</td>
<td></td>
</tr>
<tr>
<td>CSCI 4839/5839</td>
<td>(User Interface Design and Evaluation - previously CSCI 4838/6838)</td>
<td></td>
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Speech and Language Technologies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 5832</td>
<td>Natural Language Processing</td>
<td></td>
</tr>
<tr>
<td>CSCI 6302</td>
<td>Speech Recognition and Synthesis</td>
<td></td>
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</tbody>
</table>

Human Communication

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>SLHS 2010</td>
<td>Science of Human Communication</td>
<td></td>
</tr>
<tr>
<td>LING 5030</td>
<td>Linguistic Phonetics</td>
<td></td>
</tr>
<tr>
<td>LING 5420</td>
<td>Morphology and Syntax</td>
<td></td>
</tr>
<tr>
<td>LING 7800</td>
<td>Open Topics in Linguistics</td>
<td></td>
</tr>
</tbody>
</table>

Optional Course

Choose one from the optional course list (or two if programming was waived). Extra courses from the core list (beyond the required three) can also be counted as optional courses. ¹

Total Credit Hours 16

¹ For a full list of core and optional courses, visit the ICS website (https://www.colorado.edu/ics/graduate-programs/human-language-technology-certificate/).