Artificial Intelligence, Graduate Certificate

The graduate certificate in Artificial Intelligence is a five-course four-course (15 12 credit hours) program. It provides skills and training necessary to start and/or advance in the growing areas of AI, with a range of electives to focus more specifically in one’s desired direction of study. All students must take two required courses and three two electives.

A minimum of four three courses must be taken in residence in the Department Mathematics and Computer Science at from UMSL. A minimum of three courses must be at the 5000-level or higher. A maximum of two courses can be used from the 4000-level. Courses may be substituted with the permission of the program director certificate coordinator. For more information, students can contact the department chair or email info@arch.umsl.edu.

<table>
<thead>
<tr>
<th>Required Courses</th>
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<tbody>
<tr>
<td>CMP SCI 5130</td>
<td>Advanced Data Structures and Algorithms</td>
<td>3</td>
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<tr>
<td>CMP SCI 5300</td>
<td>Artificial Intelligence</td>
<td>3</td>
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| Elective Courses | 9 6 |

Choose 3 2 of the following:

| CMP SCI 5320     | Evolutionary Computation |
| CMP SCI 5340     | Machine Learning |
| CMP SCI 5342     | Data Mining |
| CMP SCI 5370     | Biological Data Science |
| CMP SCI 5390     | Deep Learning |
| CMP SCI 5420     | Digital Image Processing and Computer Vision |
| CMP SCI 6320     | Advances in Evolutionary Computation |
| CMP SCI 6340     | Genetic Programming |

Total Hours 15 12
Sign-offs from other departments affected by this proposal

<table>
<thead>
<tr>
<th>Department</th>
<th>Contact Person</th>
<th>Phone #</th>
<th>Objections</th>
</tr>
</thead>
<tbody>
<tr>
<td>S005150</td>
<td>Dinesh Mirchandani</td>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

**Rationale**
Reducing required hours as determined sufficient.