What Should a Graduate of AI-101 Be Expected to Know?

Haym Hirsh
Department of Computer Science
Hill Center for the Mathematical Sciences
Busch Campus
Rutgers, The State University of New Jersey
Piscataway, New Jersey 08855

It is particularly appropriate that the title for the symposium panel that I am chairing (and thus also the title for this introduction to the panel) is a question. I have been teaching introductory AI courses at Rutgers to both undergraduate and graduate students for five years now, and I’m confused. There are an awful lot of things that are part of AI, far too many to cover in a semester-long course. What should be taught? Should the material in AI-101 include A*? STRIPS? Lisp? McCarthy’s advice taker?

There are many things that make this a hard question to answer. Perhaps the most foundational is that different people have different views of what AI is, ranging from something near cognitive psychology, to mathematics, to system-building with a particular software technology. Another issue is the nature of the student population taking AI-101. Are they graduate or undergraduate students? Computer scientists, or from a range of disciplines? A third issue is the role AI-101 serves in a curriculum. For example, do follow-up classes expect certain things to be taught? (At Rutgers the follow-up course on AI programming has “AI-101” as its prerequisite with the expectation that people will have seen Lisp there.) Is the course for MS-bound students whose goal is to know basic “factoids” about AI (to know how to “nod at the right times”), or research-bound PhD students? Yet another issue is teaching style. Should the material be taught “bottom-up,” historically, driven by specific efforts, or “top-down,” focusing on principles underlying the field? A final issue is the role of programming in AI-101. Is programming a good way to impart the material? Is programming a necessary way to impart the material? This is just a small subset of the issues relevant to the question that serves as this panel’s name.

I am writing this introduction a few months before the actual symposium occurs. My hope is that I’ll be able to write a very different document at the end of the symposium, one that goes beyond this question-laden panel introduction and is instead an answer-laden panel summary titled “What a Graduate of AI-101 Should be Expected to Know.” This is my (hopefully not too ambitious) goal for this panel.