# Intro/Encapsulation

My name is Chris Cantrell.

I’m here to tell you about an awesome course I’m teaching through the Professional and Continuing Studies department at UAH:

It’s called: Object-Oriented Programming – A Multi-Language Examination. (look at lamp)

Alexa, turn lamp chris off. Now I know how to turn the lamp off … there is a switch right up here ...

But what if I get a new lamp with a different kind of switch? A lever switch or a wheel?

I would have to reprogram myself on operating the new lamp. But Alexa here – cancel -- is my interface to all lamps. She knows the tedious details of the different lamps, and I know her simple voice interface.

In this ever-changing world of lamp switches, it’s better for me to know the one API – talking to … HER … – instead of working directly with the private details of different lamps.

# Inheritance

Today I am writing code for the new Harry Potter zoo. It has normal animals like lions and birds, but it has some strange animals too. I needed a Griffin, which is part lion and part bird. You are thinking about object-oriented inheritance, aren’t you? Get these two together … and presto … here is my Griffin.

It IS-A lion and it IS-A bird. It inherits from both. Inheritance is what most programmers think about when they hear “object oriented programming”. It leads to some strange, rigid objects. Like this thing. This IS-A hammer and it IS-A screwdriver and it IS-A knife. It inherits from all of these, but once you have the object you can’t change it. A better way is to use composition, and it goes like this.

Here is my tool box. It is NOT-A kife or a screw-driver … but it HAS-A knife and it HAS-A screwdriver. And I can customize it at runtime. I can add tools and replace tools on the fly.

# Object Oriented Design

(edit video to show terms as I say them)

OO is a way of thinking. You model the problem you are trying to solve with objects – these often map to real physical things like a domino, a tic-tac-toe board, a game piece. But many times objects are intangible – conceptual – like a computer player or an object it uses like “best move finder”.

# Conclusion

Alexa, show the link. What do you say? Ready to join me for a crazy multi-language ride through the land of object oriented programming? Visit the UAH PCS web site here and sign up today! Alexa, fade to black.