

# THE NATURE AND PROGRESS OF KNOWLEDGE: REFINING OUR THINKING

**Coordinator:** James Smith

Explanations have a fundamental place in the universe, and improving them is an important regulating principle of all successful human endeavor. They are central to creating the conditions under which progress can or cannot happen: in science, in civilization, art, moral values, and the theory of political institutions. In this study group we sharpen our critical thinking skills and deepen our understanding of how knowledge has progressed by vigorously engaging with critical ideas that have enabled advances. We examine the nature of human knowledge, how we learn, more effective ways of thinking, and the importance of learning from our mistakes. For those with a broad-ranging interest in culture, science, the arts, and societal progress: we will be giving our minds a workout.

## Readings and other Required Materials:

David Deutsch: *The Beginning of Infinity: Explanations that Transform the World*, {Penguin Press Science, 2012 ISBN 9780143121350 \$19}

Plus various free internet reading selections.

**James Smith** was the Executive Director of a cultural learning organization for many years, and has coordinated groups on evolution, neuroscience and societal change.

\* \* \* \* \* **Syllabus - A Work in Progress** \* \* \* \* \*

## Week 1: The Nature and Power of Good Explanations

What made science so successful in understanding and explaining the physical world when all previous efforts had failed?

What was the role of explanations in the scientific and societal advances of the last 500 years?

What constitutes a powerful explanation? How does it make a difference?

## Week 2: Understanding the Universe.

How did we come to understand the nature of the universe, from stars and solar systems to the laws of physics?  
How has the creation of explanatory knowledge led to technological advancement?  
What is the connection between explaining the world and controlling it? How do new explanations create new problems?

### **Week 3: Evolution and the Creation of Explanations.**

What are the similarities and differences between biological evolution and societal evolution/progress?  
What false explanations have had to be overcome in each area?  
Why are most logically possible laws actually bad explanations?

### **Week 4: Abstract Thinking, and Levels of Explanation**

What determines our ability to understand explanations?  
What sets of phenomena can be understood well in terms of each other?  
What are “emergent phenomena?”  
How do we address the question of the kind of life we want?

### **Week 5: The Jump to Universality**

**The tendency of gradually improving systems to undergo a sudden large change in functionality, becoming universal in some domain.**

Why is this phenomenon generally evident in digital systems?

### **Week 6: Is Infinite (or Unlimited) Progress Possible?**

Does understanding the mathematics of Infinity help us understand the physical limitations to progress in knowledge and civilization, and whether there are such limitations?

### **Week 7: Should we be Optimistic about the Future?**

David Deutsch defines “optimism” as the theory that all failures – all evils – are due to insufficient knowledge. Are there fundamental limitations to the creation of knowledge?

### **Week 8: What would Socrates Think?**

Discussion of an imaginary dialogue between Socrates and Plato on how to make progress in the world of 2016.

### **Week 9: A Physicist's History of Bad Philosophy**

Bad philosophy has often prevented the growth of knowledge. Can a physicist's critique illuminate why this has been so frequent? What was the effect of Wittgenstein, positivism, and post-modernism? When has science helped to correct errors, and when has it added to them?

### **Week 10: Choices and Decision Making.**

What is the best way to generate the best options for decision making?

### **Week 11: Why are Flowers Beautiful?**

What is the connection between aesthetics and objective truth? Can elegance be a heuristic guide to truth? Are there objective aspects to beauty?

### **Week 12: The Evolution of Knowledge, and of Creativity**