

## "Modern Science," Twentieth Century Science, and Politics ◦

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In every age the science of the times is eventually reflected in philosophies of politics and government. The "Modern" science of the 16th to 20th centuries replaced the Catholic Church's strangle-hold on viewing things, and our Constitution was based on the idea of Locke's that consent of the governed was a better justification for government than the "Divine Right of Kings." So, too, we must heed in our political life the injunctions of contemporary science. The scientific perspective, at least in metaphor, is often used to bolster our views of the world in other fields. The lectures in this class are an immodest effort to bring our politics up to date with the science of at least the last century.

	<b>"Modern" Science</b>	<b>Relativity</b>	<b>Quantum Mechanics</b>	<b>Thermodynamics</b>
<b>Contributors</b>	Copernicus, Galileo, Newton, Descartes, Locke.	Albert Einstein	Niels Bohr, Werner Heisenberg, Erwin Schrödinger, Paul Dirac, many others.	Carnot, J. Willard Gibbs,* Einstein, Ilya Prigogine# (See separate handout.)
<b>Time</b>	Fixed	Relative	Relative	Relative
<b>Space</b>	Fixed	Relative	Relative	Relative
<b>Causality</b>	Causal	Causal	Statistical	Statistical
<b>Major Assumption</b>	Universe is like a machine. One can extrapolate study of individual human behavior to draw conclusions about group behavior.	All of us have a unique perspective. The point is to seek a universe in which laws of nature are expressed in the same terms for everyone.	The experiment itself interferes with the results of the experiment. Thus the uncertainty principle.	Living organisms (and their societies), are heat engines open to their environment in at least two ways: they must import energy and excrete it in the form of waste.
<b>Conclusion</b>	Even humans can be studied as though they are but parts of a machine.	There are no privileged reference points. We must transcend our prejudices.	Everything is connected to everything else.	Preserving openness to the environment is required for life, along with <i>structural</i> innovation.
<b>Political Implications (Assumptions)</b>	The good can come, somehow, out of the free competition of men (sic) for the bounty of nature. The public good is a derivative of this competition in politics. This is the assumption of Liberalism, capital "L," or faith in markets.	The universe does not revolve around: men, women, whites, blacks, communists, capitalists, fundamentalist Islam or Christianity, etc. We should seek a political universe where the laws are the same for everyone.	You are connected to all men and women. You cannot escape these connections.  "That man in the street is not your brother, he is you," Stephen Becker, <i>A Covenant with Death</i> .	The greatest incest is the rape of Mother Nature.  We cannot transcend Her as the individualistic Lockean philosophy of today would have us. That is the lesson of global warming. Unless we transform in a radical way our use of energy, we shall perish.

\*Perhaps the greatest American scientist, ever (virtually invented the field in the last century). #Ilya Prigogine won the Nobel Prize in Chemistry (1977) for inventing the mathematics to explain life.