Integrated Studies 001, Fall 2012, Knowing, Coursemap

INTRO WEEK					
	Wed.	5-Sep	Introduction		
	Thurs	6-Sep	Thursday symposium: Benn 419 10.30-12		Common text: Thomas Kuhn, *Structure of Scientific Revolutions*, chaps. I-VI, XIII, and "Postscript-1969"
	Fri.	7-Sep	Friday seminar		

		Classical Studies, Prof. Struck, Mondays ***Cohen 402, 2-3.30***	***Math Prof. Ghrist, Tuesdays*** ***Benn 419,10.30-12***	***Intellecutal History, Prof. Tresch, Wednesdays*** ***Cohen 402, 2-3.30***	***READINGS / ASSIGNMENTS***
		NARRATIVE WAYS OF KNOWING			
WEEK 1: Patterns					
	Mon. 10-Sep	Patterns of human social interaction			*Odyssey,* books 1-6
	Tues. 11-Sep		Patterns & symmetry classification as the beginning of mathematics		[individual] Classification of symmetries on Penn campus
	Wed. 12-Sep			Durkheim, from *Elementary forms of the Religious Life*	DURKHEIM, *Elementary Forms of the Religious Life*, pages: 8-18 (method) 40-44 (religion defined) 84-95, esp. pp. 84-87 and 90-95 (totemism); 99-107, 111-115, 118-122, 207-231 (social forces) 440-448 (social origin of thought)
	Thurs. 13-Sep	Thursday symposium: Benn 419 10.30-12			
	Fri. 14-Sep	Friday seminar			Project: My odyssey to Penn (10am to Blackboard)
WEEK 2: Violating Patterns					
	Mon. 17-Sep	Doing the wrong thing; food crimes			*Odyssey* 7-12
	Tues. 18-Sep		The quasicrystal surprise; irrational figures; imaginaries		[small group] Construction and analysis of quasicrystals
	Wed. 19-Sep			Rites of Passage, Sacred & Profane	VICTOR TURNER: *Ritual Process,* "Liminality and Communitas": 94-130 MARY DOUGLAS. *Purity and Danger*: 29-40
	Thurs. 20-Sep	Thursday symposium: Benn 419 10.30-12			
	Fri. 21-Sep	Friday seminar			Thesis paragraph on violating patterns. (10 am to Blackboard)
WEEK 3: Logics					
	Mon. 24-Sep	Frames of reference and modes of inference			*Odyssey* 13-18
	Tues. 25-Sep		Binary, modal logics through diagrams, sets, circuits, and social networks		[small/large group] Construction of a twitter circuit
	Wed. 26-Sep			Cultural locatedness of logic, explanation, math	TURNBULL, "On with the Motley" (in *Masons, Tricksters*) 19-46. EVANS-PRITCHARD: *Witchcraft, Magic and the Oracles among the Azande*. 21-39, 63-83, 540-544.
	Thurs. 27-Sep	Thursday symposium: Benn 419 10.30-12			
	Fri. 28-Sep	Friday seminar			Flow of logic outline. (10 am to Blackboard)

WEEK 4: Codes						
	Mon.	1-Oct	Codes and secrecy			*Odyssey* 19-24
	Tues.	2-Oct		Information; encryption; codes; self-assembly and wang tiles; DNA computers		[small group] Construction of distributed information sharing networks.
	Wed.	3-Oct			Secrecy and life cycle, knowledge as social practice	GUSTERSON, *Nuclear Rites*. REQUIRED: "Secrecy," 68-100 Recommended: "Becoming a Weapons Scientist," 38-67; "Testing, Testing," 131-164
	Thurs.	4-Oct	Thursday symposium: Benn 419 10.30-12			
	Fri.	5-Oct	Friday seminar			***LAB 1 DUE (10am to Blackboard)***

RATIONAL WAYS OF KNOWING

WEEK 5: Infinity						
	Mon.	8-Oct	Aristotle on the unmoved movers and the prime mover			Aristotle, *Metaphysics,* book 12 (book Lambda), available on Blackboard
	Tues.	9-Oct		Infinity : what we know about it and what we don't; Cantor diagonalization, Cantor sets & measure		[individual] Assignment on fractals, or essay on finite universe.
	Wed.	10-Oct			Closed World to Infinite Universe I: Machines of Light	TURNBULL: "Talk, Templates, and Tradition." (in *Masons, Tricksters*) 53-82. PANOFSKY: *Gothic Architecture and Scholasticism*, focus on 27-70 (very short pages)
	Thurs.	11-Oct	Thursday symposium: Benn 419 10.30-12			
	Fri.	12-Oct	Friday seminar			Scavenger hunt: find infinity (10am to Blackboard)

WEEK 6: Prediction						
	Mon.	15-Oct	Ancient divination: prediction, inference, and probability			Artemidorus, *Dream Book*, selections available on Blackboard
	Tues.	16-Oct		Probability; expectation; deviation	***MIDTERM FOR INTELLECTUAL HISTORY TUES. EVENING 7-9, LOCATION TBA***	[individual] Probability testing (Monty Hall, Buffon, etc.)
	Wed.	17-Oct			Closed World to Infinite Universe II: Mechanical Philosophy	S.J. DICK, *Plurality of Worlds: The Origins of the Extraterrestrial Life Debate*, Newton section; S. SHAPIN: "Pump and Circumstance": (481-511).
	Thurs.	18-Oct	Thursday symposium: Benn 419 10.30-12			Common text reading: Isaac Asimov, *Foundations*. PDF on Blackboard
	Fri.	19-Oct	Friday seminar			

WEEK 7: Project week --INVENT YOUR OWN CONSPIRACY THEORY				
	Mon.	22-Oct	**Fall term break, no classes**	
	Tues.	23-Oct		
	Wed.	24-Oct	Class will not meet, work on your conspiracy	
	Thurs.	25-Oct	conspiracy theory exhibition and judging: Benn 419 10.30-noon	
	Fri.	26-Oct	Friday seminar	

Week 8: Unpredictability						
	Mon.	29-Oct	Limits of rationality			Plato, *Apology*
	Tues.	30-Oct		Dynamical systems predictability; models; deterministic chaos	***MIDTERM FOR CLASSICAL STUDIES TUES. EVENING 7-9, LOCATION TBA***	[small group] Construction of physical device exhibiting deterministic chaos
	Wed.	31-Oct			Coping with uncertainty in public	T. PORTER, *Trust in Numbers,* vi-xii, 192-231; Possible: Edgar Allan Poe, "Maelzel's Chess-Player"; SHAPIN, "Certainty and Civility" 310-354;
	Thurs.	1-Nov	Thursday symposium: Benn 419 10.30-12			
	Fri.	2-Nov	Friday Seminar			News article, gadfly list. (10am to Blackboard)

WEEK 9: Self-reference						
	Mon.	5-Nov	The dangers of recursive systems			Sophocles, *Oedipus Rex*
	Tues.	6-Nov		Paradox; self-reference, Godel incompleteness		[indiviudal] Assignment on self-referential sentence dynamics and/or cellular automata
	Wed.	7-Nov			Objectivity as Morality	DASTON AND GALISON, *Objectivity*. 191-205; 216-250
	Thurs.	8-Nov	Thursday symposium: Benn 419 10.30-12			
	Fri.	9-Nov	Friday seminar			***LAB 2 DUE (10am to Blackboard)***

KNOWING SHAPES AND STRUCTURES

WEEK 10: Form						
	Mon.	12-Nov	Geometry and the Pythagorean theorem			Plato, *Meno*
	Tues.	13-Nov		Geometry; geometric proofs (Pythagoras + more)		[small group] Classification/construction of semiregular polyhedra
	Wed.	14-Nov			Self-Reference and Geometry: Visualization, Spiritual Exercises and the New Science	LOYOLA, *Spiritual Exercises*, pages 1-3, 25-28. DESCARTES, *Meditations on First Philosophy*. All (Hackett edition, available at Penn Book Center)
	Thurs.	15-Nov	Thursday symposium: Benn 419 10.30-12			
	Fri.	16-Nov	Friday seminar			Circle assignment (10am Blackboard)

WEEK 11: Mapping						
	Mon.	19-Nov	Microcosm: The human body as map of the cosmos			Hippocrates, *On Regimen*, books 1 and 4.
	Tues.	20-Nov		Graph theory; networks; synchronization; Euler characteristic		Assignment on Euler characteristic / Euler calculus; or construction/analysis of networked oscillators
	Wed.	21-Nov			Traces, Inscriptions, Maps	C.S. PEIRCE, "What is a Sign?" 297-302. (MS404 Eprint) B. LATOUR, "Drawing Things Together," 1-40
	Thurs.	22-Nov	**Thanksgiving break, no classes**			
	Fri.	23-Nov				

WEEK 12: Locus						
	Mon.	26-Nov	Macrocosm: Determining shape and size of the earth			*Ptolemy's* Geography*: An Annotated Translation of the Theoretical Chapters*, pp. 57-122; from Daniel Boorstin, The Discoverers, pp. 92-99, available on Blackboard
	Tues.	27-Nov		Topology; shape; distortion; knots, links, and braids; invariants		[individual] Assignment on knots, links, and braids
	Wed.	28-Nov			Geographies and spaces of knowledge	TURNBULL, "Tricksters and Cartographers" (in *Masons, Tricksters*), 89-129; Selections from TURNBULL, *Maps Are Territories: Science is an Atlas* (pdf online)
	Thurs.	29-Nov	Thursday symposium: Benn 419 10.30-12			Common text: Cosgrove "Contested Global visions." (PDF on Blackboard)
	Fri.	30-Nov	Friday seminar			

WEEK 13: Cosmos						
	Mon.	3-Dec	Ideas of the whole cosmos, and how it works			Cicero, On the Good Life, "Introduction," "Dream of Scipio"
	Tues.	4-Dec		High-dimensional spaces (manifolds); topological data analysis		[individual or small group] Configuration space assignment
	Wed.	5-Dec			Aesthetics of Knowledge Systems, Cosmograms	GIERYN, "Three Truth Spots" 113-132
	Thurs.	6-Dec	Thursday symposium: Benn 419 10.30-12			
	Fri.	7-Dec	Friday seminar			***LAB 3 DUE (10am to Blackboard)***