

TABLE 1 -- TABLE OF SPECIFICATIONS FOR NATS 101, INTRODUCTION TO GLOBAL CHANGE (Instructor: K.K. Hirschboeck)
(NATS-Specific & Overall GenEd Program Desired Outcomes)

DESIRED OUTCOMES		EVALUATION INSTRUMENT																					
	<i>[NOTE: see ASSIGNMENT LIST for full list of all assignments]</i>	G-1 Science Quotes &	G-2 Time Series Trends	G-3 Periodic Table	G-4 STELLA models	G-5 Physics Car Crashes	G-6 Atmo Circ Link	G-7 Classify Tree-Ring	G-8 Cross-dating	G-9 Global Wrm Debate	I-1 Expon Growth	I-2 Matter, etc	I-3 Laws of Motion	I-4 Intro to Tree Rings	I-5 Skeleton Plotting	I-6 Tree-Ring Research Rpt	D-1 Sci Case Studies	D-2 Linking to Life	Self Checks	Readiness Quizzes	In-class Indv & Grp Tests	Exams	Survey
ATTITUDINAL	Recognize and appreciate the complexity of scientific issues	X							X								X						
	Recognize and appreciate the integrative nature of science, including cross-disciplinary contributions								X					X		X			X				X
	Recognize and appreciate the role of science beyond the classroom in everyday life	X				X											X						X
	Incorporate an appreciation of science in one's world view	X																X					X
SCIENCE & QUANTITATIVE SKILLS	Perform appropriate mathematical calculations					X					X		X		X					X	X	X	
	Present data in tables, graphs and charts					X			X		X		X		X								
	Interpret data presented in tables, graphs and charts		X						X			X	X		X				X	X	X	X	
	Generate data								X														
	Analyze data (using abstract reasoning)				X				X							X							
	Formulate hypotheses								X							X							
	Test hypotheses								X							X							
	Design experiments					X			X														
	Write about scientific knowledge															X	X						X
	Read and understand scientific topics presented in popular sources such as magazines and newspapers									X							X	X					
	Understand the process involved in the communication of scientific results	X								X							X	X					

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	Recognize and appreciate the relative scale of objects, rates of change, linear and nonlinear growth		X								X													
	Understand the importance of physical and chemical processes and their application to events in the everyday world			X		X						X	X					X						
	Understand the commonality of the scientific approach across two or more disciplines							X		X				X		X		X	X	X	X	X		
CONTENT	<i>Understand the basics of each of the following & be able to recognize their role in features & processes observed in nature -- esp. in global change processes:</i>	Newton's laws governing force and motion				X							X								X	X		
		The laws of thermodynamics governing energy and entropy					X					X							X	X	X	X		
		The role of electromagnetism in nature										X								X	X	X	X	
		The atomic structure of matter			X							X								X	X	X	X	
	Understand the essential components of the Earth system (atmosphere, hydrosphere, biosphere, and geosphere) that are involved in global change processes				X														X	X	X	X		
	Understand feedbacks that link the Earth system components and how they work				X														X	X	X	X		
	<i>Understand and be able to explain and discuss the scientific principles underlying these global environmental change problems and issues:</i>	past climatic variability & change		X					X	X							X		X	X	X	X		
		global warming due to enhanced greenhouse effect		X		X					X								X	X	X	X	X	
		ozone depletion																	X	X	X	X	X	
		deforestation & biodiversity																		X	X	X	X	

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	Develop a global awareness of how human beings affect -- and are affected by -- processes linked to global environmental change									X								X					X
	Apply course knowledge to make informed, scientifically based, decisions about your personal role and responsibilities									X								X					X
	Understand how modeling is used as a tool in global change science				X					X											X	X	
	Understand how remote sensing is used as a tool in global change science																		X	X	X	X	
	Understand how paleo data (e.g., tree-rings) are used as tools in global change science		X					X	X					X	X	X			X	X	X	X	