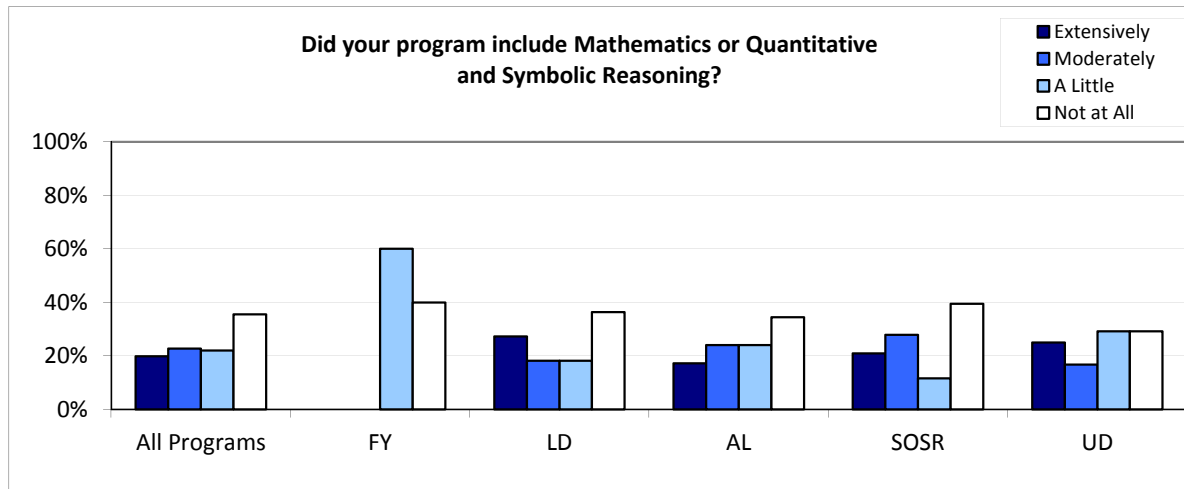
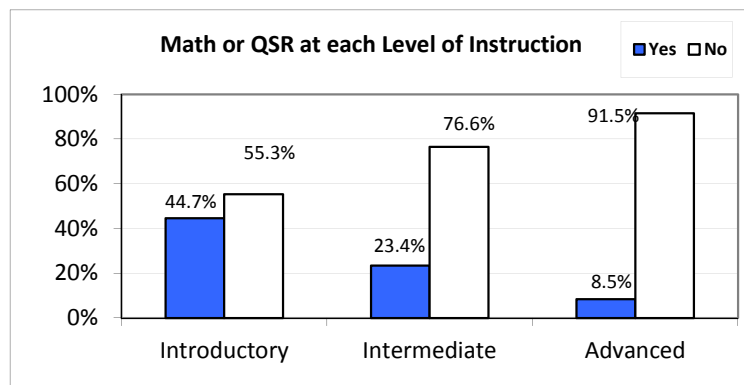


End-of-Program Review 2012-13

Mathematics or Quantitative and Symbolic Reasoning (QSR) in all programs



	Extensively	Moderately	A Little	Not at All	Percent of Programs with any Math or QSR	Programs with any Math or QSR (N)	Programs responded (N)
All Programs	19.9%	22.7%	22.0%	35.5%	64.6%	91	141
First-year (FY only)	0.0%	0.0%	60.0%	40.0%	60.0%	3	5
Lower Division (LD) FY-SO	27.3%	18.2%	18.2%	36.4%	63.7%	7	11
All Level (AL) FR-SR	17.2%	24.1%	24.1%	34.5%	65.4%	38	58
Sophomore-Senior (SOSR)	20.9%	27.9%	11.6%	39.5%	60.4%	26	43
Upper Division (UD) JR-SR	25.0%	16.7%	29.2%	29.2%	70.9%	17	24



All programs with Mathematics or QSR	Program Type	Faculty	Extent	Fields/areas of Math or QSR		
				Introductory	Intermediate	Advanced
Biology of Ecotones and Extreme Environments: Living on the Edge	LD	*Amy Cook, Gerardo Chin-Leo	Extensively	Statistics, interpretation of data, creation and interpretation of graphs		
Political Ecology of Land: Planning, Property Rights and Land Stewardship	UD	*Jennifer Gerend, Ralph Murphy	Extensively	Statistics		
Landscape Ecology and Ecosystem Management	SOSR	Peter Impara	Extensively	Statistics		Spatial Analysis
Methods of Mathematical Physics	SOSR	Brian Walter(F), *John Schaub, Gary Howell(F)	Extensively	Statistics	Linear algebra, graphing	Calculus, differential equations, linear algebra
The Biological and Sociological Foundations of Health	AL	*Carolyn Prouty, Wenhong Wang	Extensively	Social statistics, descriptive and inferential statistics		
Mathematics for Elementary and Middle School Teachers	AL	Sara Sunshine Campbell	Extensively	Number Theory, Algebra, Geometry, Probability, Statistics		
Computer Science Foundations	AL	Sheryl Shulman, *Neal Nelson, Aaron Skomra	Extensively	Mathematics and Computer Science	Mathematics and Computer Science	
Elections, Education, Empowerment: Social Change Through Quantitative Literacy	AL	*Brian Walter, Sara Sunshine Campbell, Susan Fiksdal(F)	Extensively	Geometry, Discrete Mathematics, Probability, Analysis of Data		
Trajectories in Animation, Mathematics, and Physics	AL	Ruth Hayes, *Krishna Chowdary	Extensively	Calculus I (differential calculus), Calculus II (integral calculus), Graphical Analysis of Data, Spatial/Temporal Reasoning (designing for animation and motion analysis of animated film, perspective drawing and composition)		
Memories, Dreams, and Beliefs	UD	*Heesoon Jun, Donald Middendorf	Extensively	Basic bar graph and scatter plots reading	Many students - tables and/or	Statistics in relation to statistical significance (P value); threats to external validity
Working Artists: The Business of Creativity and Art	UD	*Tom Womeldorff, Lisa Sweet	Extensively	Analysis/Interpretation of Data	Time Value of Money Calculations (Exponential Growth)	
Music, Math and Cybernetics: Things + Relations = Systems	LD	*Arun Chandra, Richard Weiss	Extensively	Algebra, Trigonometry	Fourier Analysis	

Algebra to Algorithms	AL	*Brian Walter, Sara Sunshine Campbell	Extensively	Algebra, Geometry		
Undergraduate Research in Scientific Inquiry with P. Schofield	SOSR	*Paula Schofield	Extensively	Algebra		Analysis and interpretation of data, particularly spectroscopy
Washington State Legislative Internships	UD	*Cheri Lucas-Jennings	Extensively		Statistics	Analyses/interpretations of data, solving spatial design problems
Power Play(ers): Actions and Their Consequences	UD	*Tyrus Smith and Tacoma Faculty	Extensively		Statistics, Algebra, Discrete Math, History of Math	
Entrepreneurship and Economic Development	AL	John Filmer	Extensively		Interpretation of data	
Business, Personal Finance and Statistics	LD	Glenn Landram	Extensively		Statistics	
Mind-Body Medicine	AL	*Mukti Khanna, Marja Eloheimo, Glenn Landram	Extensively		Statistics	
Adaptation: Evolutionary Patterns in Biological Space-Time	SOSR	Bret Weinstein	Extensively			Logic and reasoning, Data interpretation
Environmental Analysis	SOSR	*Andrew Brabban, Kenneth Tabbutt, Clyde Barlow	Extensively			Analysis of the real world using a range of mathematical and statistical methods including algebra, trigonometry, algorithm, geometry, statistics, etc.
Computing Practice and Theory	SOSR	*Richard Weiss, Judith Cushing, Aaron Skomra	Extensively		Statistics; description/analysis/interpretation of data	
Trajectories in Electromagnetism and Calculus	AL	Mario Gadea	Extensively		Calculus	
Introduction to Natural Science: Navigating Observation and Theory	AL	Benjamin Simon, *Dharshi Bopegedera, Rachel Hastings(F,W)	Extensively		Pre-calculus calculus	
Computability and Language Theory	SOSR	*Sheryl Shulman, Neal Nelson, Aaron Skomra	Extensively			Logic (predicate, propositional, modal, and constructive), computability theory.
Physics and Calculus: Finding Order in the Physical World	SOSR	Mario Gadea	Extensively		Calculus	

The Chemistry of Living Systems	SOSR	*Paula Schofield, Lydia McKinstry	Extensively			Data Analysis/Interpretation, Extensive Graphing, Algebra
Field Ecology: Forests	UD	*Dylan Fischer, Alison Styring	Extensively			Statistics, GIS
Boom or Bust: The U.S. Economy, 2013 and Beyond	SOSR	*Bill Bruner, David Shaw, Qi Chen	Moderately	Statistics, Macroeconomics Problem	Macroeconomics Problems	
Public Health and Economic Development in Sub-Saharan Africa	AL	*Tom Womeldorff, Nancy Anderson	Moderately	statistics, algebra		
Student-Originated Studies: Research in Psychology and Related Social Sciences	SOSR	Laura Citrin	Moderately	Statistics - descriptive (means, SDS), and inferential (+/- test, chi square, correlation)	Analysis of qualitative and quantitative data	
Geopolitics, Energy, Economics and Stewardship of the Pacific Northwest	SOSR	Ralph Murphy, *Zoe Van Schyndel	Moderately	Statistics	Statistics	
The Fungal Kingdom	UD	*Noelle Machnicki, Lalita Calabria	Moderately	Statistics	Data analysis, interpretation, graphing and visual data representation	
Science Seminar: The Universe and Beyond	AL	EJ Zita	Moderately	Scientific reasoning; interpretation of data		
Transmutation: The Alchemy of Scientific Thought	LD	*Joseph Tougas, Rebecca Sunderman	Moderately	Quantitative analysis in chemistry		
Food, Health and Sustainability	AL	*Donald Morisato, Martha	Moderately	Probability, Logarithms and Exponents, Unit Conversions	Symbolic reasoning in genetics, analysis of experimental data	
Dancing Molecules	AL	*Rebecca Sunderman, Kabby Mitchell	Moderately	Precalculus		
Music Intensive	SOSR	*Sean Williams, Andrea Gullickson	Moderately	Music Theory		
As Poetry Recycles Neurons: Flocks of Words, Tracks of Letters	AL	*Sarah Williams, Donald Foran(F)	Moderately	Mathematics in Poetry; interaction of Math/Physics/Poetry	Mathematics in poetry	
Boom or Bust: Social Struggles of the 1930s	AL	*Andrew Buchman, David Shaw, Paul McMillin, Qi Chen	Moderately	Macroeconomics, statistics, demographics, music theory		

Entrepreneurship and Power	AL	*Zoe Van Schyndel, Brenda Hood(F)	Moderately	Finance/Accounting		
Political Economy and Social Movements: Race, Class, and Gender	SOSR	*Michael Vavrus, Peter Bohmer	Moderately	Economic - micro & macro, and descriptions/analyses/interpretations of data		
Chanoyu: Traditional Japanese Culture and the Way of Tea	AL	*Tomoko Hirai Ulmer, Daryl Morgan	Moderately	Designing a tea space with a model and also for actual tea ceremony presentation.		
Landscapes of Change: Writing & Mapping the Future	AL	*Anne de Marcken (Forbes), Peter Impara	Moderately	Description, Analysis and Interpretation of Data		
The Diversity of Life: Explorations in Biology	SOSR	Martin Beagle, *Trisha Towanda	Moderately	Applied Statistics		
Advanced Research of Arid Ecosystems	UD	*Abir Biswas, Clarissa Dirks	Moderately	Algebra, Trigonometry, Statistics, descriptions/analyses/interpretations of data	Statistics, descriptions/analyses/interpretations of data	
Earth and Life	LD	*Clarissa Dirks, Abir Biswas	Moderately	Algebra, trigonometry, Statistics	Descriptions/analyses/interpretations of data	
Practice of Sustainable Agriculture: Fall	SOSR	*David Muehleisen, Stephen Bramwell, Melissa Barker	Moderately	Algebra, arithmetic, Statistics	Descriptions/analyses/interpretation of data	
Global Meltdowns: Finance, Energy and Climate Change	AL	*Larry Geri, Peter Dorman	Moderately	Algebra and statistics for introductory economics, introduction to data analysis		
Tech Dreams: Entrepreneurial Lessons from Silicon Valley	AL	David Shaw	Moderately		Entrepreneurship, Innovation and Technology, seminar readings, case studies Independent Research Project (typically, a business plan draft)	
Business and Culture Along the Silk Roads	AL	*Thuy Vu, Hirsh Diamant, Bobbie McIntosh	Moderately	[no comments]		

Entrepreneurship with a Purpose: Human, Community, and Economic Development for Sustainability	AL	Brenda Hood	Moderately		Development of sophisticated financials with linked Excel spreadsheets, graphs, and financial interpretation of data. Also, required research in the field, accessing academic and business journals to learn about the industry their dream business project was part of and providing analysis and interpretation of market data.	
Climate Solutions	SOSR	Rob Cole	Moderately		Graphical Analysis & Interpretation; Chemical Reactions; Linear & Logarithmic Graphs	
Clinical Psychology: The Scientist-Practitioner Model	SOSR	George Freeman	Moderately		Research methods in the social sciences	
Vertebrate Evolution	UD	*Heather Heying, Jennifer Calkins(F)	Moderately			Phylogenetic analysis Analysis of data and interpretation of scientific results Spatial reasoning associated with movement through mediums (physics of flight, optics, physics of sound and sound analysis...)
Biodiversity Studies in Argentina	UD	Erik Thuesen	Moderately		Biostatistics	
Undergraduate Research in Scientific Inquiry with C. Dirks	SOSR	Clarissa Dirks	Moderately			
General Chemistry	AL	Peter Pessiki	Moderately		Algebra,	
Undergraduate Research in Scientific Inquiry with J. Neitzel	SOSR	James Neitzel	Moderately		Data analysis, statistics	
Undergraduate Research in Scientific Inquiry with L. McKinstry		Lydia McKinstry	Moderately		Algebra	Descriptions/analyses/interpretations of data/problem solving
Fiber Arts	SOSR	Gail Tremblay	A Little	Students learned to use formulas		
Ornithology	AL	*Alison Styring, Dina Roberts	A Little	Students analyzed population trends of a species of interest using data from the Christmas Bird Count (Audubon) and the North American Breeding Bird Survey.		
Equality and the Constitution	SOSR	Jose Gomez	A Little	Statistics: Disparities in the application of the death penalty		
Turning Eastward: Explorations in East-West Psychology	LD	Ryo Imamura	A Little	Statistics, Interpretation of data		

TRI: Foundations for Sustainable Tribal Nations -- Peninsula	UD	*Michelle Aguilar-Wells, Chad Uran	A Little	Statistics, data analysis		
So You Want to be a Psychologist	AL	Carrie Margolin	A Little	Statistics - but just ONE lecture - as an overview		
Sea Change: The Science of Climate Change in the Oceans	UD	Trisha Towanda	A Little	Statistics	Analyses and interpretation of data	
Integrative Evolution (...Evolution is for the Birds)	UD	Jennifer Calkins	A Little	Statistics		
Stop Making Sense	UD	*Steven Hendricks, Laura Citrin	A Little	Some mathematical reasoning, especially in relation to research and simple sociological data		
TRI: Foundations for Sustainable Tribal Nations -- Nisqually	UD	Cynthia Marchand-Cecil	A Little	None		
Orissi Dance and Music of India	AL	*Andrew Buchman, Ratna Roy	A Little	Music theory topics including meter, rhythm, subdivision, polyrhythm, tuning systems, physics of sound and acoustics. Some examination of quantitative data involving demographics as part of our historical and social studies of Indian cultures.		
Afrofuturism	UD	*Andrew Buchman, Joye Hardiman, Chico Herbison	A Little	Music Theory		
Amazing Grace: U.S. Religious Thought and Practices, 1780-1850 and 2013	AL	Marla Elliott, *Joli Sandoz	A Little	Music literacy; interval training		
Rites of Passage: Ceramics and Fine Metalwork	UD	*Jean Mandeberg, Evan Blackwell	A Little	Interpreting and solving spatial design projects, understanding multiple systems of measurement	Interpreting and solving spatial design projects	
African American Literature	SOSR	Artee Young	A Little	Interpretations of data		
Alternatives to Capitalism	AL	Peter Dorman	A Little	Geometry (in economics)		
Dead People and their Stuff: Introduction to Archaeology	LD	Ulrike Krotscheck	A Little	earth sciences, scientific methods in archaeology		
Picturing Plants	AL	*Ruth Hayes, Frederica Bowcutt	A Little	Descriptions/analyses/interpretations of data		
Biology Through Darwin's Lens	AL	Jennifer Calkins	A Little	Data interpretation and analysis		

Playing Politics	AL	Mark Harrison, *John Baldrige	A Little	Critical investigations of political polling strategies and results. The quantitative aspects of the politics of gerrymandering and its effects on the "numbers" behind partisan representation in US federal governance.		
Gender Performances	AL	Toska Olson, *Susan Fiksdal	A Little	Computed data in tables for fieldwork assignments		
American Indian Sovereignty: Competing Contexts	SOSR	*Kristina Ackley, Jose Gomez	A Little	Census analysis, descriptions/analyses/solving spatial design problems		
Gender and Power in Cross-Cultural Context	AL	Toska Olson	A Little	Basic summary statistics of fieldwork data		
Anatomy and Physiology	SOSR	Cindy Beck	A Little	Basic Math for balancing CO ₂ -H ₂ O->H ₂ CO ₃ -		
Making Public Health Matter: Reimagining Health-Based Journalism	AL	*Nancy Anderson, Suzanne Simons	A Little	Algebra, descriptions/analyses/interpretations of data		
Popular Uprisings: 1968, 2011 and the Road Forward	AL	*Peter Bohmer, Elizabeth Williamson	A Little	[Faculty did not elaborate.]		
Religion, Society and Change	AL	Joli Sandoz, *Suzanne Simons,	A Little	[Faculty did not elaborate.]		
Awakening the Dreamer, Pursuing the Dream	FY	*Terry Setter, Cynthia Kennedy	A Little	[Faculty did not elaborate.]		
Writing Nature, Writing "Race"	FY	*Chico Herbison	A Little	[Faculty did not elaborate.]		
Green Nature, Human Nature	AL	*Karen Hogan, Emily Lardner	A Little	[Faculty did not elaborate.]		
Evolution of Human Language	FY	*Rachel Hastings, Bret Weinstein	A Little	[Faculty did not elaborate.]		

*Faculty coordinator