

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Jessica Carter	In Situ Conservation of the Southern Rocky Mountain Grizzly Bear	The Southern Rocky Mountain grizzly bear is currently on the endangered species list. Various steps must be taken to secure long-term viability of these bear populations, and retention on the endangered species list is critical if these efforts are to be successful.	BIOL	499	103		3:30 PM- 3:50 PM	F
Thomas Purbaugh	Photopigments and the Entrainment of the Circadian Clock	Circadian Rhythms in humans and many other animals depend in part on the photoreceptive ability of the retina in the eye to entrain, or synchronize, the light-dark cycle. This presentation will discuss the specific photopigments involved in the input process of circadian photoreception.	BIOL	499	105		3:30 PM- 3:50 PM	F
Sarah Adcock	Possible Factors Influencing the Decline of Southern Resident Orcas	Southern resident Orcas have recently been added to the endangered species list because of their rapidly declining population numbers. Some possible factors that may be responsible for this decline include water pollution, reduced prey availability, and boat disturbance.	BIOL	499	103		3:50 PM- 4:10 PM	F
Richard Burke	The Role of Axonal Transport in Neurodegenerative Diseases	This talk will investigate the mechanisms and key participants involved in intracellular transport in neurons. I will then discuss new data implicating the dysfunction of neuronal transport in the cause and development of several neurodegenerative diseases.	BIOL	499	105		3:50 PM- 4:10 PM	F
Patrina Pellett	Hybrid Poplar Potential for Phytoremediation of Cadmium	Hybrid poplar cadmium uptake ability was studied by exposing young trees to different levels of cadmium. Substantial amounts of cadmium were found in harvestable tissues, indicating hybrid poplars are good candidates for phytoremediation.	BIOL	499	103		4:10 PM- 4:30 PM	F
Theresa Duarte	The Growth Hormone/ Insulin-Like Growth Factor Axis: Analyzing the Somatomedin and Dual-Effector Hypotheses	This talk will examine the relationship between growth hormone and insulin-like growth factors. In addition, the somatomedin and dual-effector hypotheses of this axis will be analyzed and discussed.	BIOL	499	105		4:10 PM- 4:30 PM	F

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Alexander Lawrence	Bioluminescence in Animals and Fungi	This presentation will provide an overview of bioluminescence in specific aquatic animals, beetles, and fungi.	BIOL	499	103		4:30 PM- 4:50 PM	F
Kari Berntson	The Ecological Impact of the Reintroduction of Grey Wolves to Yellowstone National Park	A review 10 years later of the ecological impact wolves have made in Yellowstone National Park. Since their reintroduction, wolves have affected interspecific predator-prey relationships, competition for resources, prey behavior, and abiotic factors.	BIOL	499	105		4:30 PM- 4:50 PM	F
Rachel Koschnick	Bioremediation of Contaminated Soils	Bioremediation is a relatively new and environmentally friendly way of cleaning contaminated substrates. This review looks at the types of pollutants that can be remediated, ways of improving bacterial degradation of contaminants and current trends in bioremediation.	BIOL	499	103		4:50 PM- 5:10 PM	F
Debra George	Implications of Persistent Maternal and Fetal Microchimeric Cells in Systemic Autoimmune Disease	A bidirectional exchange of a small number of non-inherited, nucleated, stem cells occurring between mother and fetus have been found to engraft into the bone marrow of the recipient and later in life found to be implicated in chronic autoimmune disease pathophysiology.	BIOL	499	105		4:50 PM- 5:10 PM	F
Maureen Craig	The Role of Antigenic Drift in the Evolution of the 1918 Influenza Pandemic and Implications for the Future	It is classically thought that pandemic viral strains are products of recombination events, but new information is showing the 1918 influenza A pandemic virus to be the product of point mutations. Knowing more about this virus will help us to better understand and prepare for future pandemics.	BIOL	499	103		5:10 PM- 5:30 PM	F
Erik Loraas	The Impact of Climate Change on Birds	Over the last 40 years it has become apparent that the global climate is changing. In light of this change, many researchers have explored the consequences of climate change on global bird populations. As bioindicators, the status of bird populations can point to the greater health of ecosystems.	BIOL	499	105		5:10 PM- 5:30 PM	F

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Jerri Seidel	Impacts of Artificial Propagation on Wild Pacific Salmon	Fish hatcheries have been used since the late 1800s for the purpose of enhancing salmon populations. The effects on wild salmon populations will be described.	BIOL	499	103		9:30 AM-9:50 AM	S
Adam Oswald	Soil Development in the Amazon Rainforest	This topic is an investigation into uses of wild plant material to support soil production for agricultural systems in the Amazonian rainforest. It focuses on the sources of infertility, soil transformations under agriculture, and possible solutions applied to human agriculture as a whole.	BIOL	499	103		9:50 AM-10:10 AM	S
Matt Griffith	Dihydrotestosterone's Role in Early Onset Alopecia and Potential Link to Prostate Cancer	Increased Levels of DHT have been shown to cause Alopecia as well as prostate cancer in individuals genetically predisposed. My discussion will explore a possible link between the two.	BIOL	499	105		9:50 AM-10:10 AM	S
Andrea Gabler	Mechanisms of Trinucleotide Repeats	Trinucleotide repeats are polymorphic in the human population, and are responsible for at least 17 genetic disorders. Recent studies suggest that the secondary structures formed by trinucleotide repeats are important in the most current proposed mechanisms of their expansion and contraction.	BIOL	499	103		10:10 AM-10:30 AM	S
Daniel Seetin	Channel Signaling Functions in Hair Cells and Supporting Cells in the Cochlea, and Consequences in Deafness	Exploring the roles of BK channels and intracellular calcium stores in cochlear hair cells, and gap junctions in supporting cells of the cochlea, to allow normal hearing function. Deafness-causing mutations in genes encoding these channels will also be discussed.	BIOL	499	105		10:10 AM-10:30 AM	S
Erin Ham	An Overview of Trichloroethylene Degradation by Microbial Populations Based on Oxygenase Activity	Trichloroethylene (TCE) is a common pollutant in the U.S. Certain types of bacteria have been found to degrade TCE in their everyday metabolic pathways. Each microbe has different abilities and affinities for TCE and can therefore be used under different conditions in order to get the best results of bioremediation.	BIOL	499	103		10:30 AM-10:50 AM	S
Kristen Davignon	Neuron-glia Interactions in Synaptic Transmission: the 'Tripartite'	In the past, glial cells have typically held passive roles in the CNS and the PNS. However, new research has shown that glia, specifically astrocytes, may actively participate in synaptic transmission. The process of signaling in the tripartite will be explained using the models of glutamate and ATP.	BIOL	499	105		10:30 AM-10:50 AM	S

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Heidi Jarnagin	Chemical Signaling by Plants to Attract Parasitoids in Response to Herbivory	In response to herbivory, plants release volatiles that attract parasitoidal insects preying on the herbivorous insects present on the plant; this interaction is beneficial to both parasitoids and plants.	BIOL	499	103		11:10 AM-11:30 AM	S
Brian Jochim	Kisspeptins and GPR54 Receptors: Key Players in the Initiation of Puberty	My presentation will investigate the possible roles of Kisspeptins and GPR54 receptors in the initiation of puberty.	BIOL	499	105		11:10 AM-11:30 AM	S
Ruth Bennett	Preventing Trypanosomiasis: Developments in Tsetse Fly Vector Control	Trypanosomiasis, a fatal disease in both humans and livestock, has recently resurged in Sub-Saharan Africa. This talk will evaluate the current methods being used to eradicate tsetse flies, the primary vectors of the disease, and these methods' impacts on the environment.	BIOL	499	103		11:30 AM-11:50 AM	S
Eve Rugarber	The Mechanisms of Acupuncture: A Critical Review of the Literature	Acupuncture, a highly controversial procedure for western practitioners, has been rigorously investigated over the last decade to determine the degree of efficacy and possible mechanisms therein. A review of the literature reveals possible physiological pathways important in acupuncture.	BIOL	499	105		11:30 AM-11:50 AM	S
Kristen Kuehl	Leaf-Cutter Ants: Coevolution and Ecological Impacts	Leaf-cutter ants of the <i>Atta</i> genus have coevolved with a family of fungi, upon which the ants depend for nutrition. The evolution of this mutualistic relationship has led to the development of specific ant behaviors and foraging patterns that has significant ecological impacts.	BIOL	499	103		11:50 AM-12:10 PM	S
Keith Peterson	The AKT Signaling Pathway and its Role in Tumorigenesis and Cancer	This presentation will examine the AKT signaling pathway and its role in tumorigenesis and cancer. Recent findings have implicated this pathway because it stimulates cell proliferation and inhibits programmed cell death.	BIOL	499	105		11:50 AM-12:10 PM	S
Theresa Park	The Causes of Pseudohermaphroditism in the Development of a Human Male	The development of an embryo and its reproductive organs will be discussed. During its development, there are genetic defects or deficiencies in androgens that can cause the fetus to be born with ambiguous genitalia. Treatments and clinical cases will also be discussed.	BIOL	499	103		12:10 PM-12:30 PM	S
Lindsay Tozier	Physiological Responses to High Elevations	Ascending into high elevations brings about a series of physiological responses as the body enters a state of hypoxia. Specific adaptations allow native people to better reside in such environments. I will also discuss experiments that I participated in at 15,744 ft and at sea level.	BIOL	499	105		12:10 PM-12:30 PM	S

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Medicinal Chemistry Students	Canada Experience During J-Term 2006	Slide Show and Talks	CHEM	491	216		1:00 PM-2:00 PM	F
Chelsea Berdahl	Sonogashira Coupling Reaction of Aryl Iodides with Terminal Acetylenes in the Presence of Palladium Chloride in Water Under Aerobic Conditions	A Sonogashira cross coupling reaction between an aryl iodide (1-iodo-4-nitrobenzene) and a terminal acetylene (phenyl acetylene) was carried out in the presence of a palladium catalyst and pyrrolidine in water under aerobic conditions to yield 1-nitro-4-(phenylethynyl)-benzene.	CHEM	336	216		4:00 PM-4:20 PM	F
Catherine Stout	Extraction and Purification of Shikimic Acid from Star Aniseed	Shikimic acid was isolated from star aniseed. Anion exchange chromatography was used to purify the acid from the initial extract. The crude product was then treated with activated charcoal to remove further impurities, and the purified product was characterized by NMR and IR spectroscopy.	CHEM	336	216		4:20 PM-4:40 PM	F
Emily Stratton	Pyrrole Synthesis from Acetyl Acetone and <i>p</i> -Aminobenzophenone	A pyrrole synthesis method was examined through the reflux reaction of acetyl acetone and <i>p</i> -aminobenzophenone in toluene with <i>p</i> -toluenesulfonic acid. The reaction mechanism and a pyrrole product were proposed. IR and NMR results confirmed this postulated pyrrole as the product of the synthesis.	CHEM	336	216		4:40 PM-5:00 PM	F

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Adam Bonney, Karin Belsvik	QuizGen: The Online Quiz System	Using PHP and MySQL, QuizGen, the online Quiz Generation system enables teachers to create, administer, and instantly grade quizzes through an online interface. With QuizGen, classes can be better tailored to the needs of students, allowing for more effective use of class time.	CSCE	499	203		12:30 PM- 1:00 PM	F
Aaron Gerow	IntegriNet: Distributed Network Analysis	An extensible framework for distributed network analysis; implemented here as a proof-of-concept system to allow for and motivate continued development in future distributed network analysis systems.	CSCE	499	203		1:00 PM- 1:30 PM	F
David Poole	Portable Electronic Travel Guide	Using PHP, PostgreSQL, HTML, and Ajax technologies, this project's aim was to create an electronic travel guide that could deliver information about locations and activities near those locations. It was also designed to be portable, so users could carry it with them as they traveled the world.	CSCE	499	203		1:30 PM- 2:00 PM	F
Vera Karplyuk, Erica Kieswetter	Analysis of RSA Security	We studied modern encryption systems with a special emphasis on the most popular algorithm called RSA. The RSA's strength is based on the difficulty of factoring very large composite numbers. We implemented and benchmarked various factoring algorithms to assess their potential threat to RSA security.	CSCE	499	203		2:00 PM- 2:30 PM	F
Kevin Claus, Randall Yoakum	Gyrosphere!	Gyrosphere is the integration of hardware and software to develop an interactive game. The 3D game is being developed in C++ using the DirectX graphics tools. The hardware device utilizes a microcontroller and a gyroscope. Upon completion the game characters will be controlled through the hardware.	CSCE	499	203		3:30 PM- 4:00 PM	F
Adam Johnson, Norman Edwards, Trevor McDonald	Rolla Board	The Rolla Board is a rotating self cleaning white board that will help improve students ability to see all of the instructor's notes as well as saves valuable teaching time. The board is powered by a reversible DC Gear Motor that is controlled by a switch.	CSCE	131	203		4:00 PM- 4:15 PM	F
Moriah Zimmerman, Michael Rochester, John Rieke	Reversible Hair Dyes	People always change their hair color; they want to be blonde on the weekends, but brunette during the week. By using photochromatic dyes, we intend to make a hair product sensitive solely to temperature and UV light. This will allow two ranges of color: a natural color and a photochromatic color.	CSCE	131	203		4:15 PM- 4:30 PM	F

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Mark McCabe	Character Recognition	This project explored optical character recognition in computing by implementing a neural network algorithm to process digital images and learn from mistaken recognitions. The presentation will include a demonstration of the algorithm on some basic test images.	CSCE	499	203		9:30 AM-10:00 AM	S
Joseph Izenman, Perry Wong	Contract Job Costing and Scheduling	Large-scale project organization software is often too broad and costly for small contracting companies. We provide a cost-effective storage base for all project information, plus inventory management, online employee timecards and weekly reports. Open-source systems are used to reduce cost.	CSCE	499	203		10:00 AM-10:30 AM	S
Ryan Kennard	Semi-Automated Electronic Seal Testing	A system has been developed to accurately measure and record pressure at the nozzle of a spray gun using: a USB interface, a Analog to Digital converter, a pressure transducer, and a LCD display. The project results help improve and automate quality control at a local applied coatings company.	CSCE	499	203		10:30 AM-11:00 AM	S
William Conine	A Prototype 3D Laser Scanner using Structured Light	A laser scanner is a tool for digitizing 3D information describing the surface geometry of a physical object. My implementation uses a laser, camera, and a rotating table to triangulate this information as 3D points. The scan is automated, the data is post-processed, and then rendered with OpenGL.	CSCE	499	203		11:15 AM-12:00 PM	S
Nathan Yocom	Kerberos: Secure User and Service Authentication	Kerberos, a protocol for secure user and service authentication, has been around for roughly 20 years, yet is relatively unknown or misunderstood in a large portion of the software development community and IT industry. Learn what Kerberos is, how it works, where it is used and why it is useful.	CSCE	Alumni	203		12:00 PM-12:30 PM	S
Joey DiJulio	The ServPanel Project	ServPanel is a complete web administration package for FreeBSD servers; harnessing the power of PHP, JavaScript, Bash, and MySQL technologies. ServPanel installs and provides web-based control over the industry-standard services of Apache, MyDNS, PureFTP, qmail - all normally administered via SSH.	CSCE	499	203		1:30 PM-2:00 PM	S

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Shane Hall	SNMP - Simple Complexity	SNMP is one of the most common tools for monitoring the status of network connected equipment. This past year XKL announced an Optical Transport System that uses SNMP for system monitoring. This talk will discuss the process of implementing and testing the SNMP system for this device.	CSCE	Alumni	203		2:30 PM- 3:00 PM	S
Jeremy Tinder	Using C and VHDL in System Verification	This presentation illustrates how to use non-synthesizable VHDL and C to verify the design of a system.	CSCE	Alumni	203		3:15 PM- 3:45 PM	S
Bryce Bockman	From Java Coder to Nose-Down Bit-Pusher	This year XKL released a beta version of an optical cross connect system. To get to this point has taken about two years. I'll discuss some of what that process was like for the team that designed and implemented the system's software, from the perspective of a PLU CSCE graduate.	CSCE	Alumni	203		3:45 PM- 4:15 PM	S
Jacob Nelson	Microprocessors, Embedded Systems, and Robots at PLU	This spring, Dr. Tosh Kakar and I taught a new, application-oriented version of CSCE 480: Microprocessors. The students built maze-solving robots using Freescale's HCS12 embedded microcontroller. In my talk, I'll discuss our approach, the robot hardware, and potential applications to other classes.	CSCE	Alumni	203		4:15 PM- 4:45 PM	S

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Willie Painter	Bridging the Gap: Environmental Impacts of US Dairy Supports	There presently exists much scholarly research analyzing how subsidy policy influences farm size. The purpose of my research is to identify if there exists a link between subsidy policy and the adverse environmental impacts of increased farm size.	ENVT	499		103	12:30 PM-1:00 PM	F
Kelly Fahl	Investigating a State-wide Ban on Polybrominated Diphenyl Ether (PBDE) Flame Retardants	This paper explores several disciplines relating to a bill, which would ban polybrominated diphenyl ethers (PBDEs), in Washington State. A background on the chemical is given, then the bill is used as a case study to explore the politics, ethics, and economics behind environmental legislation.	ENVT	499		103	1:00 PM-1:30 PM	F
Michael Johnson	Political, Economic, and Environmental Pushes Toward Biodiesel	Political, economic, and environmental factors have caused a recent increase of interest and demand of biodiesel. This project investigates these factors and other developments to holistically determine if biodiesel should be pursued as a substitute for diesel in the United States.	ENVT	499		103	1:30 PM-2:00 PM	F
Elizabeth Hoffman	Human Influence on Australian Habitat and Its Implications for the Small Mammal Species <i>Bettongia tropica</i> , the Northern Bettong	Human influence on Australian land, by indigenous Aboriginals and European settlers, has led to the loss of species, habitat, and diversity. Particularly in northeastern Queensland, human impact has led to the population decline and current endangered status of the northern bettong, a small mammal.	ENVT	499		103	2:00 PM-2:30 PM	F
Aimee Boursaw	Backyard Wildlife Sanctuaries: One Response to Wildlife Habitat Loss and Fragmentation	This project looks at backyard wildlife sanctuaries as a solution to habitat alteration, fragmentation, and loss in urban/suburban developed areas. It will address the benefits and limitations of wildlife gardens for native plants and wildlife and look at the PLU campus as a wildlife habitat.	ENVT	499		103	3:00 PM-3:30 PM	F

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Kristen Myers	Agricultural production methods and their effect on the environment, public policy, and social change in the United States.	The farming methods employed in the United States range from the use of small, organic, or community supported farms, to large industrial precision farms. There are political, social, and environmental implications of each method of food production.	ENVT	499		103	3:30 PM-4:00 PM	F
Aaron D. Highlands	Understanding water exchange between Spanaway Creek and a shallow aquifer	Spanaway Creek, tributary to Clover Creek, has been monitored to see how shallow aquifers interact within reach of a stream. Studying hydrologic interactions is important in understanding how to restore, if at all possible, stream and shallow aquifer exchanges within the Clover Creek Watershed.	ENVT	499		103	4:00 PM-4:30 PM	F
Katie Anderson	Countryside Management: The Development of Environmental Policy in Britain	Farmland dominates the British countryside and, although agriculture can cause environmental damage, governmental policy encourages active management of rural lands. People's perceptions of the countryside have been instrumental in such an approach to conservation.	ENVT	499		103	4:30 PM-5:00 PM	F
Penny Beckwith	Environmental Education and Outdoor Leadership in South India	India's Kodaikanal International School (KIS) is committed to environmental education through the development of a wilderness program. This project evaluates existing examples to offer recommendations for the incorporation of an effective environmental education and outdoor leadership program.	ENVT	499		103	5:00 PM-5:30 PM	F

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Ben Kortlever	Investigating the Use of Gage Data and Vegetation Mapping to Determine the Rate and Style of Channel Change on the Wheaton River, Yukon Territory, Canada	The factors that cause channel change on the Wheaton River have been studied very little. There is no clear pattern of aggradation or degradation. Julian Year discharge shows earlier onset of melting over the past decade. The results imply that channel change is influenced by climatic factors.	GEOS	499		109	9:00 AM-9:30 AM	S
Brian Sunderland	The Reactivation of the Aldercrest-Banyon Landslide	What caused the reactivated landslide in Kelso? A slope stability test during construction showed unstable ground. The Aldercrest-Banyon landslide is one of the largest natural disasters in WA. This study confirms earlier suggestions that excessive rainfall and human activity initiated the slide.	GEOS	499		109	9:30 AM-10:00 AM	S
Jeremy Bush	Oregon Coast Basalt Flows: A Comparison Study Between Cape Kiwanda and Cape Lookout and their links to the Columbia River Basalt Group	Where did the volcanic features at Cape Kiwanda originate? Previous studies suggest that Cape Lookout and Cape Kiwanda are related to the Columbia River Basalts (CRBs) but lacked data connecting these features to the CRBs. Anorthite percentages are too high at Cape Kiwanda to be related to the CRBs.	GEOS	499		109	10:00 AM-10:30 AM	S
Kari Akin	An Analysis of the Anorthosite-Charnockite series of Snowy Mountain Dome, South Central Adirondacks, New York	What were the impacts of magmatic and tectonic events on two rare rocks and what were estimated temperature and pressure conditions for these rocks? Petrology was used to analyze samples collected from Snowy Mountain Dome. The results reveal a complex history.	GEOS	499		109	11:00 AM-11:30 AM	S
Leif Dobszinsky	Woody Debris and Stream Morphology Impacts on the West Fork of Chimacum Creek, Jefferson County, WA	How important is wood debris found in stream systems? Wood debris stores sediment and changes stream dynamics by altering course, bed, and bank characteristics. An inverse correlation of stream width and wood debris density gives reason to study wood debris impact on ripple spacing in streams.	GEOS	499		109	11:30 AM-12:00 PM	S
Marie Wroble	Sediment transport along the Long Beach Peninsula	What types of beach sediments make up the Long Beach Peninsula? Data from two ocean sites and one bay site document the occurrence of quartz and dark minerals, including hornblende, hypersthene, magnetite and jasper. These sites also show differences in sediment grain sizes, related to tides.	GEOS	499		109	12:00 PM-12:30 PM	S

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Laurel Williams	Analysis of Hyperbolic Geometry	Hyperbolic geometry is a form of geometry that, although not obvious at first glance, is very similar to the more commonly known Euclidian geometry. We will be looking at the Poincare disc model and how its hyperbolic space differs from and is similar to Euclidian space	MATH	499	132		12:30 PM-1:15 PM	F
Troy Hashagen	Mancala	The game Mancala has been played for over 3,500 years and is the oldest continually played game in human history. I describe how to play Mancala, educational benefits of Mancala, the history of the game, winnable positions, and multiple theorems about winnable positions which I developed	MATH	499	132		1:25 PM-2:10 PM	F
Ryan Alarcon	The Mathematical Growth of Polynomials in China	We will discuss the Chinese's use of the counting board in their exploration of polynomials and the root extraction algorithms developed by Jia Xian, and compare these with western mathematical techniques. In the end, we will find that Jia Xian's method was a very elegant way to look at extracting roots in his era of mathematical growth.	MATH	499	132		2:20 PM-3:05 PM	F
Shandra Crosby	The Binomial Distribution	This presentation will investigate confidence intervals produced from the binomial distribution. More specifically, we explore the Wald confidence interval, which is presented in most introductory statistics classes, and look at methods used to make this interval more accurate.	MATH	499	132		3:35 PM-4:20 PM	F
Elizabeth Steen	π : The Big Deal About a Little Number	Since its discovery about 4,000 years ago, mathematicians have been fascinated by π and its applications. In this presentation, the history of π will be traced by looking at the contributions of great mathematicians including formulas for π , approximations of π , and proof of π 's irrationality.	MATH	499	132		4:30 PM-5:15 PM	F

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Erica Kieswetter	The Quadratic Sieve Algorithm	The Quadratic Sieve factoring algorithm is one of the biggest threats to the security of the popular modern encryption system, RSA. I first present the Fermat method, which leads to Dixon's Algorithm, which forms the basis for the Quadratic Sieve. I describe the math of the Quadratic Sieve in detail.	MATH	499	132		8:45 AM-9:30 AM	S
Mary Hansen	Exploring Geometric Constructions	By giving a brief overview of basic geometric constructions and then delving into the abstract algebra that forms the foundation of constructability, this presentation examines the construction possibilities generated by using simply a compass and a straight edge.	MATH	499	132		9:40 AM-10:25 AM	S
Emily Zeigler	More About Sudoku Than You Ever Wanted to Know!	Sudoku is the new puzzle craze sweeping the nation. During this presentation, you will be introduced to solution strategy theorems, new techniques to help the avid puzzle solver and tidbits of information about this awesome puzzle's design. (Cupcakes will be provided as well!)	MATH	499	132		10:50 AM-11:35 AM	S
Drew Cardwell	Dynamical Systems, and Differential Equations with Physical Applications	Dynamical systems describe the passage in time of points within some space, and are useful for modeling physical systems. Differential equations are closely related to dynamical systems. Tools for analysis of such systems have been studied, and will be applied in order to analyze physical problems.	MATH	499	132		11:45 AM-12:30 PM	S
Mark Oliver	The Perron-Frobenius Theorem and the Avian Flu	This project explores the long run behavior of multi-state systems using linear algebra. Specifically, we investigate irreducible matrices using directed graphs and the Perron-Frobenius Theorem. The concepts developed will be applied to a theoretical discussion of the Avian Flu pandemic.	MATH	499	132		1:30 PM-2:15 PM	S
Jennifer Hime	Exploring Integration: One Mathematician at a Time	What is integration? In calculus, the integral of a function is a generalization of area, mass, and volume. The process of finding integrals is integration, in the mathematical meaning. I explore the importance of Riemann and Lebesgue theories to develop a better understanding of the question.	MATH	499	132		2:25 PM-3:10 PM	S
William Conine	Elementary Results of Complex Analysis	This talk will focus on fundamental results from complex analysis, starting with algebraic representations, limits and derivatives. It will also cover some interesting results such as Euler's identity, Cauchy-Riemann equations, the ML inequality, the Cauchy-Goursat Theorem, and Cauchy's Integral formula.	MATH	499	132		3:20 PM-4:05 PM	S

Presenter	Title	Description	Dept	Class	MCLT	RCTR	Time	Day
Travis Savala	Holograms	Holograms are three-dimensional images captured within a two-dimensional surface, either film or a glass plate. This semester's project involved transmission holograms, which are best viewed with a monochromatic light source that is the same color as the light used to create it.	PHYS	499	131		3:30 PM- 3:45 PM	F
Richard Johnson	Measuring Planck's Constant with LEDs	As a Light Emitting Diode emits light, electrons fall through a potential difference that is related to the wavelength of the light emitted. By measuring the voltage drop across the LED, Planck's constant is determined.	PHYS	499	131		3:45 PM- 4:00 PM	F
Tyler Killen	Chladni Resonance Patterns	When sand is sprinkled onto a vibrating plate it will collect at the wave nodes. Chladni's theory for a circular plate relates the number of nodes and the vibration frequency. This experiment explores the wave patterns in plates of different shapes, thicknesses, and materials.	PHYS	499	131		4:00 PM- 4:15 PM	F
Austin Egert	10 Meter OATS Stepped Frequency Volumetric Site Attenuation	A description of Normalized Site Attenuation, physical site attributes, and experiments conducted at Intel's DuPont, WA site are presented. The talk includes background of electromagnetic compatibility testing.	PHYS	499	131		4:15 PM- 4:30 PM	F
Luke Dahlberg	Particle Physics: Bubble Chamber Photograph Analysis	In the study of particle physics, bubble chamber photographs are a surprisingly rich source of information. By using a combination of plane geometry and relativistic mechanics, I show how to use these photographs to obtain the masses and lifetimes of an unknown particle, and a sigma particle.	PHYS	499	131		4:30 PM- 4:45 PM	F
Drew Cardwell	Simulation of Plasma Equilibrium within a Field Reversed Configuration (FRC)	Fusion devices, which utilize magnetic confinement, use plasmas as fuel. Theoretical developments were studied concerning plasma equilibrium within axis symmetric fields. Simulations have been used to determine the magnetic field and plasma pressure within FRCs.	PHYS	499	131		4:45 PM- 5:00 PM	F