1999

Symposium 1999

University of Maine at Farmington

UNIVERSITY OF MAINE AT FARMINGTON

SYMPOSIUM

WEDNESDAY, APRIL 14, 1999

SYMPOSIUM AGENDA
APRIL 14, 1999

8:00 - 8:30 a.m.	North Dining Hall Continental Breakfast
8:30 - 8:45 a.m.	Introduction - Mary Schwanke
9:00 - 12:00 p.m.	Concurrent Sessions (see room schedule)
12:00 - 1:00 p.m.	Lunch - South Dining Hall (walk through student line)
1:00 - 3:30 p.m.	Concurrent Sessions (see room schedule)

University life is more than just going to class and taking tests. The university exists to promote research, collaboration between students and faculty, and an intense curiosity about the world around us. Here at UMF, exciting research outside the classroom motivates both students and faculty, but often goes unnoticed in the hectic pace of a typical semester. Today is designed to provide an opportunity for students and faculty to both share what they've been doing, and to explore the intellectual diversity of UMF in an open and informal manner. In eight different venues faculty and students will be presenting research, offering samples of art and creativity, discussing current issues in science and society, and sharing with the campus community a bit of what goes on all the time behind the scenes. Perhaps it is best to see this as a smorgasbord of intellectual delights. We all have the chance to enjoy and explore a bit more of what scholarly life is about, choosing what we wish to sample based on our own interests and concerns. Best of all, it's a fat-free smorgasbord! So please, look over the program, see what interests you, choose different venues and presentations to visit, and discover a part of UMF the defines what kind of university we are, even if it isn't always on display.

Venue #1: Conference Room 123

Morning Session Moderator: Bob Pederson

Afternoon Session Moderator: Lea Bryant

Full Abstracts for all the presentations in this session are listed consecutively beginning on Page 9.

Time	Speaker	Title
9:00-9:50	G. Lea Bryant, Ph.D., MPH, CHES	"Theory into Practice Through Service Learning: An Example of Promoting Scholarship through Community Health Promotion"
10:00-10:25	Travis Horne, Jeni Fitts, Athena Dubay, Nicole Barnes, Darcey Robertson, Betsy Gould and Jim Fortunato	Kickin Butts
10:30-10:55	Travis Horne, Jesse Darling, Pam White, and other students in HEA 310	Involvement in Public Policy as a Service Learning Project
11:00-11:30	Pam White, Stacey Brewer, June Sharkey HEA	"The Art of Being Smoke-Free"
11:30-1:00		
1:00-1:25	David Pied, Kelly Jo Bragg, Holly Richards, Kelly Saurman, Shannon Connolly, Chris Howe, Daphne Pullen	Health Beaver 5K Fun Run/Walk
1:30-2:25	Allison Kulick, Sylvie Charron, Lucia Swallow, Diane Weder	Fifteen University Students Help 250 Mallett School Children!!!
2:30-2:55	Michelle Caliandro, Nathan Chick, Tim Guillerault, Ellen Malloy, Stephanie Thibeau	"No Butts About It!" HEA
3:00-3:30	Bonnie Gardner, Sharon Hodgdon, Pam Chenea, Linda Ustach and Teresa Merrill.	FASS/T: Females Against Secondhand Smoke and Tobacco

Venue #2: Roberts 307

The full Abstract for this presentation is located on Page 12.

Time	Speaker	Title
10:00-12:00	Kathleen McAnneny and Allison Hepler	History, Geography and Service: Creating a Local Women's Heritage Trail in Farmington and Wilton, Maine

Venue #3: Ricker 14

Full Abstracts for all the presentations in this session are listed consecutively beginning on Page 12.

Time	Speaker(s)	Title
8:00-10:00	Eric Whitten and David Irving, Chris Newman	A Mini Network
10:05-11:50	Martha Lively and Russell Rainville	RSA Encoding
12:00-1:30	COS 142 class	Recursion as illustrated by the Towers of Hanoi problem
1:35-2:45	COS 140 class	Randomization in computing as applied to games.

Venue #4: Ricker 217

Morning Session Moderator: Tom Eastler

Afternoon Session Moderator: Cathleen McAnneny

Full Abstracts for all the presentations in this session are listed consecutively beginning on Page 13.

Time	Speaker	Title
9:00-10:30	Dean Bennett	Environmental Ethics: From a Cellar Hole to a Wilderness
10:40-11:40	Lee Sharkey, students from WST 370	"The Utopia Project"
11:40-1:00		
1:00-2:00	Lee Sharkey, Amy Hesby	"The Country with No Milk"
2:10-2:50	Peter Williams, Paul Frederic	Restructuring Education in Southern Africa

Venue #5: Thomas 17

Morning Session Moderator: Rich Robinson

Afternoon Session Moderator: Dave Gibson

Full Abstracts for all the presentations in this session are listed consecutively beginning on Page 15.

Time	Speaker(s)	Title
9:00-9:20	Leo Pratte and Anna Zinovyeva	The Dog: Not only mans best friend but the future in his fight against bacteria?
9:30-9:50	Kathy Norton and Antonio Landry	Inside - Out: In Search of *Helicobacter pylori*
10:00-10:20	Tracy Arcari	Detection and quantification of *Escherichia coli* in water: a statistical comparison of polymerase chain reaction and membrane filter techniques.
10:30-10:50	Laurie Button	Outcrop Scale Brittle Fracture Study of the Camden 7-.5-Minute Quadrangle.
11:00-11:30	Dr. Dan Buckley	Lake Monitoring in Western Maine: Research conducted by UMF Aquatic Biology Classes
11:30-1:00		
1:00-1:20	Christine Norton, Tony Landry, and Dr. Ron Butler	UMF Lichen Ecology Research Program
1:30-1:50	Rebecca Belanger, Leslie Czajka, and Jennifer Polselli	Antibiotic Resistant Genes in Bacteria
2:00-2:30	Kristy Marriner, Jerry Bean, and Seth Campbell	Which Antacid is Best?

Science Poster Session : **Ricker Hall** **9:00- 11:00**

Full Abstracts for all the presentations in this session are listed consecutively beginning on Page 18.

Presenter	Title
Tracy Arcari, Dr. Daniel Buckley, and Jennifer Polselli	Water Quality and the Risk of Bacterial Infection in Three Lakes in Western Maine
Faith Collins, Ben Blouin	Who Did it? Affordable Fun with Forensics
Laurie Button	The Schoodic Point Dike Swarm: A Petrographic and Structural Study of Dike Emplacement
Kristie Clapp	Searching For A Match: A Study In Historical Petrography
Thomas Linscott	Radon: It's Health and Home Issues, It's Controversy
Rachel Calder	Zeolites
Matt Michaud, Carol Haskins, Caitlin Reagen, Cherrianne Harrison	Analysis of Calcium by Atomic Absorption Spectrophotometry
Meredith Gauthier, Andrew Duffey, Brandi Gagnon, Leon Estell	The Analysis of Phosphorus in Soft Drinks
Renee LeClair, Abby Friend, Todd Fenwick, Josh Winkle, Jesse Alexander, Marian Arris	Which Cooking Method Retains the Most Vitamin C?
John Hoctor, Tim Adams, Tabatha Smith, Amanda Brown, Mark Jones	Neutralizing Power of Various Antacids
Kale Ladd	The Trophic Status of Wilson Lake
Jeremiah Marden	Extrasolar Planets

Venue #6 **Nordica Auditorium**

A Full Abstract for this presentation is listed on Page 23.

Time	Speaker	Title
11:00-12:00	Steven Pane, pianist, with presentations from selected students taking FIA 377 Men, Women, and Pianos.	Lecture/Recital: Frédéric Chopin and his World

Venue #7: **Mabel Hastie Lounge**

Morning Session Moderator: Siobhan Senier

Afternoon Session Moderator: Pat O'Donnell

Full Abstracts for the presentations in this session are listed consecutively on Page 23.

Time	Speaker	Title
9:00-9:45	Doug Rawlings	The Vietnam War: Through the Eyes of American Poets
10:00-10:50	Wesley McNair	Poetry Reading
11:00-12:00	Pat O'Donnell, Elizabeth Cooke	A Reading of Short Fiction
12:00-1:00		
1:00-2:00	Joel King	The Family Development Project
2:30-3:00	Dan Gunn and Others	"The Writings of Aton Hylton"

Venue # 8: **Seminar Room**

Morning Session Moderator: Rob Lively

Afternoon Session Moderator: Nancy Prentiss

Full Abstracts for the presentations in this session are listed beginning on Page 23.

Time	Name(s) (Presentation Type)	Title
9:00-9:55	Paul Geis (Demonstration)	"Mathematical Games"
10:00-10:55	Monica Redlevske and Kathleen Landry (Presentation)	Developmental Math Manipulatives and Activities for Children age Preschool to grade 2.
11:00-11:25	Lucia Swallow, Susan Anzivino, Norma Johnsen, Karl Franson, Nancy Prentiss (Panel Discussion)	Let's Hear From Faculty, Students and Participants involved in several Service Learning Courses
11:30-12:00	Marcia Nash, Betsy Squibb and Betty Beach (Poster)	Early Childhood Education
12:00-1:00		
1:00-2:00	Jeanette MacDonald, Allison Brown (Debate)	"Indian Captivity: Terrible Ordeal or Better Way of Life?"
2:30-3:00	Scott Erb (Discussion)	Kosovo

Venue 1: Conference Room 123

"THEORY INTO PRACTICE THROUGH SERVICE LEARNING: AN EXAMPLE OF PROMOTING SCHOLARSHIP THROUGH COMMUNITY HEALTH PROMOTION" 9:00-9:50

G. Lea Bryant, Ph.D., MPH, CHES

Although service learning is a relatively new topic of discussion across academia, the concept of service learning has long epitomized curricular models in teacher education and public health. Lea Bryant, assistant professor of community health will showcase, through a slide show presentation, an example of a community health promotion project implemented in suburban federal housing development in East Tennessee. A discussion will also entail a variety of topics surrounding theory and practice projects in higher education, along with ethical considerations and the application of service learning as a teaching strategy in higher education settings.

KICKIN BUTTS 10:00-10:25

Travis Horne, Jeni Fitts, Athena Dubay, Nicole Barnes, Darcey Robertson, Betsy Gould and Jim Fortunato

Kickin Butts will be presenting from the HEA 311 Health Education Planning class, in collaboration with the Tobacco-Free Franklin grant at University of Maine at Farmington.
Kickin Butts will identify and provide information regarding the smoking cessation resources and program available in the University of Maine at Farmington and the surrounding Farmington community. Kickin Butts will also feature a speaker who has successfully quit smoking and he will provide us with information and resources that were used.

INVOLVEMENT IN PUBLIC POLICY AS A SERVICE LEARNING PROJECT 10:30-10:55

Travis Horne, Jesse Darling, Pam White

During the 1999 spring semester, students in Diana White's HEA 310 Principals of Prevention and Health Promotion class has been involved in a service learning project. Service learning is an educational concept in which students are engaged in a project that serves the public in some way, as well as provides a learning experience for the students. In this particular service learning project the students are involved in a variety of aspects of the legislative process in Maine that deal with public health policy. Focusing on issues related to reductions in chemical use and pollution, students have worked on issues of strategy development, data collection and presentation, publicity, and testifying and lobbying in Augusta. Students are working with legislators, lobbyists, and public health organizations, including Ned McCann of the Maine AFL-CIO, Representative Robert Duplessie from Portland, and the Natural Resources Council of Maine. Students are assisting supporters of pollution prevention in collecting data, preparing testimony, and responding to questions. The policy issues raised by this legislation are related to broader public

health goals of assuring that people live, work and play in a safe environment. Students are reflecting on how this form of learning has benefitted their educational experience as well as prepared them for future community involvement.

"THE ART OF BEING SMOKE-FREE" 11:00-11:30

Pam White, Stacey Brewer, June Sharkey

Through local artistic talent, we hope to create a memorable event at UMF showing the effects of tobacco use. We will be presenting an overview of this problem-based service learning project. The Spring 1999 Health Education Planning Class actually became an arm of the Tobacco-Free Maine Campaign. The class has revolved around a university-based media campaign on the issue of tobacco use on the UMF campus. As we reflect on service learning, we will explain the development of the Art Gallery project. We will also share the value which has been added to our educational experience by participating in this project. The Art Gallery will be exhibited in the Student Center April 13, 14, and 15th. Please visit the exhibition before attending our presentation. On April 14th, Eliza Panzella will give several performances of a dance she choreographed: Death With Smoking Through Dance. The times will be posted near the "Beach" in the Student Center.

HEALTH BEAVER 5K FUN RUN/WALK 1:00-1:25

David Pied, Kelly Jo Bragg, Holly Richards, Kelly Saurman, Shannon Connolly, Chris Howe, Daphne Pullen

As students in "Health Education Planning" (HEA 311), our goal is to promote awareness of the harmful affects of tobacco use and second hand smoke to the UMF community. We intend to reach our population through a number of media sources. Specifically our group is focusing on the Health Beaver 5K run/walk. The school acquired money from the state and as a result we are able to utilize the funds necessary for our media campaign.

The Health Beaver 5K will not only bring together the UMF community; it will also provide useful information dealing with tobacco use and second hand smoke. Our presentation will focus on how we as a group had to work together and with the community in order to make our project successful. We will share the steps we took and part of the research that was involved with planning such an event. Our presentation will be oral and we will display some of our research through overheads and handouts as well as t-shirts promoting the race.

FIFTEEN UNIVERSITY STUDENTS HELP 250 MALLETT SCHOOL CHILDREN!!! 1:30-2:25

Allison Kulick, Sylvie Charron, Lucia Swallow, Diane Weder

In a partnership between Mallett School and the University, 15 university students are working with 12 Mallett School teachers and about 250 children. This program is a successful service learning project that began in the Spring of 1998 in response to the Maine Learning Results in Modern and Classical Language. These 15 UMF students are spending thirty minutes a week in the classroom teaching French to first and second graders, practicing skills learned in a course taught and developed by Sylvie Charron. This class was developed to train students in teaching French.

Part of the class involves reflecting on the process, which is a vital aspect of service learning. Come see how Service Learning is working in our community and how it has helped many students here on campus as well as our Farmington community. This presentation will reflect on the effects of the Mallett School French project on the students, cooperating teachers, and those teaching the French. The presentation will also include a mini-lesson to some of the Mallett School children, a discussion, and also a time to browse and look at the artwork and portfolios created by the students.

"No Butts About It!" 2:30-2:55

Michelle Caliandro, Nathan Chick, Tim Guillerault, Ellen Malloy, Stephanie Thibeau

This problem based service learning project is sponsored by a grant from the Partnership for Tobacco Free Maine. The goal of our project was to provide smoking cessation materials, resources, and education to the UMF community at a "No Butts About It" gathering. The gathering provided cessation materials, a list of community resources
for smoking cessation, and guest speakers for the UMF students and staff. The gathering was promoted through posters, flyers, local radio stations, and local newspapers.

FASS/T: Females Against Secondhand Smoke and Tobacco 3:00-3:30

Bonnie Gardner, Sharon Hodgdon, Pam Chenea, Linda Ustach and Teresa Merrill.

As students in Health Education Planning (HEA 311) at UMF, a group was formed for the purpose of targeting UMF college women and the effects of secondhand smoke and tobacco. The name of our project group is FASS/T which stands for females against secondhand smoke and tobacco. The slogan to be utilized in our communications via our media campaign is "Secondhand smoke kills...FASS/T". The University of Maine at Farmington received $80,000 in grant money originating from state funds collected from the implementation of higher cigarette taxes. FASS/T is part of the Partnership for a Tobacco-Free Maine media program targeting UMF students. We will highlight the dangers of secondhand smoke exposure effecting UMF women. Come and see a presentation that could make a difference in your life.

Venue 2: Roberts 307

HISTORY, GEOGRAPHY AND SERVICE: CREATING A LOCAL WOMEN'S HERITAGE TRAIL IN FARMINGTON AND WILTON, MAINE 10:00-12:00

Kathleen McAnneny and Allison Hepler

Students at the University of Maine at Farmington, created a Farmington Women's Heritage Trail, combining the resources of UMF faculty and students with the talents and knowledge of the local community to build on growing interest in regional history and culture, and to develop a practical, out of the classroom experience for local public school students and teachers. During a 4 week, intensive summer course (providing 3 credits each in history and geography), this project provides UMF students with practical application in geographic and historical methods as they conduct research for the trail (in consultation with community members), interpret data, and collectively produce a booklet to serve as a self-guided tour documenting women's contributions to the region. This project also fosters links between campus faculty and students and community members who are the local "experts" in local heritage. This collective compilation of knowledge and resources will produce a public document available to anyone, visitors and lifelong resident alike. The students and faculty involved in this project will take participants through the process of developing a discipline linked course, integration of service learning into a course and creating the trail.

Venue 3: Ricker 14

A MINI NETWORK 8:00-10:00

Eric Whitten and David Irving
Activities dealing with a mini TCP/IP network will be discussed.

RSA ENCODING 10:05-11:50

Martha Lively and Russell Rainville
A discussion and illustration of the RSA encryption algorithm.

RECURSION AS ILLUSTRATED BY THE TOWERS OF HANOI PROBLEM 12:00-1:30

COS 142 class
A panel discussion of recursion and an application to the Towers of Hanoi problem.

RANDOMIZATION IN COMPUTING AS APPLIED TO GAMES. 1:35-2:45

COS 140 class
A panel discussion of games and random numbers.

Venue #4: Ricker 217

ENVIRONMENTAL ETHICS: FROM A CELLAR HOLE TO A WILDERNESS 9:00-10:30

Dean Bennett

Hidden in the faded past of a dark, tree-choked, crumbling cellar hole deep in the remote wildlands of northern Maine lies a story of hope for our relationship with the rest of nature. Here, the long-silent remains of the 1846 lumbering depot Chamberlain farm slowly fade beneath the encroaching forest. But if one looks patiently and deeply enough, as Dean Bennett has in his three years of research for a new book, there are lessons to be learned from the history of this place--lessons about human values that will guide us, individually and collectively, into an ethical relationship with the natural world. With video clips, slides, and other visual aids, you will be led on a journey through time, discovering how human values changed a place and how it mirrored the changing values of a society. And when the journey is over, you will find new meaning in Henry David Thoreau's famous statement, "in Wildness is the preservation of the World," and you will learn that there is hope for the preservation of wildness.

"THE UTOPIA PROJECT" 10:40-11:40

Lee Sharkey, students from WST 370, Mothers and Daughters

Students in this semester's Mothers and Daughters class have undertaken as a research project the construction of a mother/child utopia. Each student has responsibility for one aspect of that society as it impinges on the lives of mothers and children. Among the topics they have chosen are education, health care, lesbian parenting, adoption, preschool childcare, children's literature, midwifery, and religion. They are approaching this
project by locating resources (people, books, and journal articles), informing themselves about how that element of society functions at the present time in the United States, and researching another society that approaches or has approached it differently (for example, the Ibo of Nigeria, whom we have been studying). Their final step is to extrapolate
from this cross-cultural perspective a vision of their cultural ideal. In other words, they are mapping how it's done here, how it's done somewhere else, and how it should be done--a model for feminist intellectual enterprise. In each case, they are considering institutional structures and practices, cultural assumptions that underlie them, and the
consequences for mothers and children.

"THE COUNTRY WITH NO MILK" 1:00-2:00

Lee Sharkey, Amy Hesby

Last summer I [Lee] taped interviews with four elderly Russian women. I wanted to learn how landmark events in the drama of Soviet history--the collectivization of agriculture, the Great Patriotic War, the famines attendant upon each of these, and the repression and dislocations of the Stalinist era--had figured in their lives. I

pledged to pass their stories on. Not surprisingly, one of the key elements in the stories these women tell to explain themselves is food. They experienced history directly through its effects on their stomachs--the presence or absence of bread and potatoes, the danger of stealing off to the woods to eat one's fill of blackberries. Their response to deprivation was most often to share what little they had, acts that saved lives and sustained the sense of community through the brutalizations of totalitarian rule and war. We will present the women's words, interpret them in a historical context, and reflect on what it means for those of us who have never directly experienced war and hunger to be the bearers of their tales.

RESTRUCTURING EDUCATION IN SOUTHERN AFRICA 2:10-2:50

Peter Williams, Paul Frederic

The dismantling of apartheid and the establishment of Black majority rule in Sough Africa and Namibia during the 1990's has resulted in a rapid shift in political power, however, changes in social and economic patterns progress at a much slower pace. Under White rule modest investment was made in the Black schools while Whites had access to excellent educational resources at home or abroad. This design provided for a semi-skilled non-white labor force to meet the needs of the White controlled economy. However, with the Black rule and movement toward greater opportunities for non-whites, educational institutions are confronted with the difficult task of providing a more rounded citizen. In K-12, math and science were largely neglected because non-whites were not being prepared for positions in business or research. Likewise post-secondary schools tended to maintain this gap, with White dominated universities being world class while non-white institutions were filled with those students that were weak in math and science.

Peter Williams has worked as a Fulbright K-8 math consultant in Sough Africa and Paul Frederic has taught geography a the University of Namibia. They will discuss the challenges of the new political agenda as it relates to education and available resources.

Site #5: Thomas 17

THE DOG: NOT ONLY MANS BEST FRIEND BUT THE FUTURE IN HIS FIGHT AGAINST BACTERIA? 9:00-9:20

LEO PRATTE AND ANNA ZINOVYEVA

In today's medical world, antibiotic resistance has become one of the biggest problems. In the recent past scientists started looking into antibacterial defenses present in natural sources. The recent studies have concentrated on extracting possible antibacterial elements from organisms having natural defenses against the bacteria. Dog and human interactions occur on an everyday basis. It is common to see a dog lick a child's face, but are they really spreading infection, or does canine saliva have properties that may be beneficial to human race? Many tests have been performed to determine antibacterial properties of mammalian saliva. This project was designed to take a closer look at the antimicrobial properties of human and canine saliva. Collected salivary samples was tested against bacterial strains commonly found in the external environment. The samples were tested on microorganisms found and isolated from the oral cavity of dogs and humans.

INSIDE - OUT: IN SEARCH OF *HELICOBACTER PYLORI* 9:30-9:50

Katherine Norton, Antonio Landry

First isolated in 1983, *Helicobacter pylori* is one of a large family of related bacteria that are well adapted to persist in the stomach of vertebrates (Blaser, 1998). Although the mechanism of infection is still unknown, *H. pylori* infection has been implicated as an aetiologic agent in a variety of gastric diseases (Lindkvist et al., 1998). *H. pylori* has been, and continues to be, prevalent in underdeveloped countries (~ 70 - 90%). Currently *H. pylori* is regarded as one of the most common chronic bacterial infections in humans (De Castro et al., 1998), affecting ~30- 40 % of the U.S. population (*Helicobacter* Foundation, 1998).

Although *H. pylori* has been extensively studied in regard to its association with gastroenterological disease, little has been done to successfully distinguish potential modes of transmission. Recent literature has suggested various modes including oral-oral, fecal - oral, and housefly (*Musca domestica Linnaeus)* mediated vector transmission (Henderson, 1997; Mlot, 1997; Li et al., 1995; Husson, 1993; Seifrit,1997). This research was designed to determine the mechanism of *H. pylori* transmission through bridging the gap between the presence of *H. pylori* within the environment and the incidence of *H. pylori* infection in *Homo sapiens*.

DETECTION AND QUANTIFICATION OF *ESCHERICHIA COLI* IN WATER: A STATISTICAL COMPARISON OF POLYMERASE CHAIN REACTION AND MEMBRANE FILTER TECHNIQUES 10:00-10:20

Tracy Arcari

Currently, research is being conducted at the University of Maine at Farmington to correlate land and water use to eutrophication of area lakes. Water quality of the target lakes is monitored throughout the summer months when use/risk is highest. Methods of analysis include nutrient and micro nutrient assay via colorimetry, YSI datalogger use to determine turbidity, pH, temperature and dissolved oxygen

concentration at all depths and measurement of fecal coliforms via the membrane filter technique. Fecal coliform detection is an important part of this water quality analysis as recent studies in Maine have correlated property values to the presence of coliform bacteria and water clarity (Michael *et al*, 1996).

The purpose of this study was to establish a protocol for the monitoring of fecal coliforms in target water bodies by implementing and comparing two accepted techniques for fecal coliform determination. The membrane filter technique and a newer polymerase chain reaction technique were compared. The protocol established for use in the environmental study of target lakes will utilize the technique which proves to most expeditious and accurate.

OUTCROP SCALE BRITTLE FRACTURE STUDY OF THE CAMDEN 7-.5-MINUTE QUADRANGLE. 10:30-10:50

Laurie Button

A brittle fracture study of 45 outcrops in the Camden 7-5-minute Quadrangle was done to provide preliminary information for future hydrological studies. The orientation, roughness, planarity, trace length, terminations, associated mineralizations and azimuth(s) of terminators of 1442 fractures, faults, traces and veins were measured.

The geology of this area include three stratigraphic sequences which together span possible Late Precambrian to Upper Ordovician (Caradoc) age. The rock types are quite diverse, consisting of orthoquartzite, biotite quartzite conglomerate, various units of quartz-mica schist and granofels, medium-bedded granofels with garnet bedlets, calc-silicate rocks, and coarse-grained marble. The stratified units are deformed into a complex map pattern of thrust sheets, reclined and upright folds, with attendant outcrop-scale ductile folds and foliations. The rocks are polymetamorphic, with peak garnet to sillimanite zones most likely produced in the late Silurian. Younger, mappable high angle faults are post-metamorphic.

Preliminary analysis suggests that there are four pervasive fracture families; 30°, 90°, 110°, 130°. Crosscutting relationships indicate that the 30° family may be the youngest, or in other words the last event to occur.

LAKE MONITORING IN WESTERN MAINE: RESEARCH CONDUCTED BY UMF AQUATIC BIOLOGY CLASSES 11:00-11:30

Dr. Dan Buckley

Maine's 5000+ lakes and ponds are important all-season recreational areas that serve both local populations and Maine's important tourist industry. Businesses and towns derive important revenues from people attracted to their shores. It is important to monitor and maintain the water quality of these economic and recreational resources. State monies for monitoring water quality and remediation of problems has decreased and the burden of watershed monitoring and pollution control has been shifted to local lake associations, towns, and a dedicated corps of trained volunteers. While some lake associations (or individuals) have shouldered the expense of extensive chemical monitoring of their lake, most lake associations are not able to afford such testing.

For the past five years, students in the fall Aquatic Biology course at the University of Maine at Farmington have studied seasonal changes in our local lakes. Their research on the biological, chemical and physical processes occurring within the lakes has furthered our understanding of these ecosystems and helped in the local monitoring efforts. Data collected by these classes has been presented to both local lake associations and Maine's Department of Environmental Protection. This and additional individual research supported by the lake associations, the Western Mountain Alliance, and UMF is one example of how university-community partnerships can support low-cost monitoring of the environment for the benefit of all.

UMF LICHEN ECOLOGY RESEARCH PROGRAM 1:00-1:20

Christine Norton, Tony Landry, and Dr. Ron Butler

Increased attention has been focused on the ecology of lichens because of their potential importance as indicators of air pollution, forest health and integrity, biodiversity 'hotspots', and human health. As an expansion of a faculty research initiative, the UMF Lichen Research Unit was formed in 1998 to give students the opportunity to participate in real-world research projects involving lichen ecology. Presently, the LRU comprises 8 student members (paid interns, directed study students, and volunteer researchers). New members initially work together with more experienced students while they learn the necessary taxonomic and identification techniques required for the project (e.g., lichen morphology, field identification and sampling, use of complex dichotomous keys, microscopic analysis, chemical testing). During this training period, new students assist experienced LRU members in the field and learn the sampling protocol, field identification of lichens, field identification of tree species, and use of GPS/GIS technology. Following this 'apprenticeship', student interns are required to pass a lichen competency exam to verify their reliability to collect data accurately in the field without direct supervision. This presentation will highlight student involvement in all phases of lichen research at UMF. Preliminary results will be presented for two ongoing LRU research projects: 1) a study intended to assess potential correlates of lichen diversity and lung disease mortality in western Maine towns and 2) an investigation of the micro-island biogeography of rock lichen communities on Great Duck Island (ME).

ANTIBIOTIC RESISTANT GENES IN BACTERIA 1:30-1:50

REBECCA BELANGER, LESLIE CZAJKA, AND JENNIFER POLSELLI

Every major bacterial pathogen encountered has evolved resistance to many of the most effective antibiotics. Research in this field is imperative and has growing implications in the biological, medical and economic worlds. This project was designed to study the transfer of resistant genes found on bacterial plasmids through conjugation. While other methods can result in gene transfer, conjugation appears to be the most common mechanism for gene transfer in bacteria. Conjugation is also responsible for enhancing the genetic variability, therefore enhancing a bacterial population's ability to develop resistance to antibiotics.

Bacteria were collected and isolated from the environment and stained to determine Gram designation. The isolates were then tested for their level of resistance to various antibiotics. A series of mating experiments were then executed with the following bacteria: Gram positive resistant with Gram positive susceptible, Gram

negative resistant with Gram negative susceptible, Gram positive resistant with Gram negative susceptible and Gram negative resistant with Gram positive susceptible. The number of generations required for resistant bacteria to spread resistant genes to nonresistant bacteria was determined. The extent of bacterial resistance, and how long and easily this resistance can be passed on from generation to generation are some of the results that will be discussed in further detail.

WHICH ANTACID IS BEST? 2:00-2:30

Kristy Marriner, Jerry Bean, and Seth Campbell

The purpose of this study was to determine which over-the-counter antacid neutralizes the most acid. Both solid and liquid antacids were analyzed, as were several acid controllers. The antacids neutralizing capability was determined by a back titration. Of all the antacids tested, the generic "Double Strength Antacid plus Simethicone" (True Value Brand) was the most effective.

Science Poster Session

All Posters will be displayed from 9:00-11:00 in Ricker Hall

WATER QUALITY AND THE RISK OF BACTERIAL INFECTION IN THREE LAKES IN WESTERN MAINE

Tracy Arcari, Dr. Daniel Buckley, and Jennifer Polselli

The purpose of this study was to monitor the water quality of lakes in Western Maine and determine the potential risk of bacterial infection associated with recreational and domestic use of these waters. Chemical parameters and fecal coliform levels were examined in three lakes: Sand Pond in Chesterville, Wilson Lake in Wilton, and Clearwater Lake in Industry. Study sites were chosen to represent Maine lakes and ponds of varying size, human population densities and recreational activity. Samples were collected weekly from sites maintained on each of the lakes and analyzed using a modification of the state approved M-TEC membrane filter technique method for detecting fecal coliforms and a SMART colorimeter for chemical analyses. In addition to water quality data, water usage surveys were conducted with the help of the Wilson and Clearwater Lake Associations.

The target microbe, *Escherichia coli* quantified via this method were not found to exceed the Department of Environmental Protection's accepted limits for recreational use at any site over the duration of this study. Wilson Lake was found to have the highest mean levels within the safe range with Sand Pond and Clearwater Lake following. Chemical analyses of $N\text{-}NO_2$, $N\text{-}NO_3$, $N\text{-}NH_4$, $P\text{-}PO_4$, and pH established trophic levels from lowest to highest as, Clearwater Lake, Wilson Lake and Sand Pond. Further study will attempt to correlate population density and recreational use to trophic level and elevated fecal coliforms.

WHO DID IT? AFFORDABLE FUN WITH FORENSICS

Faith Collins, Ben Blouin

The purpose of this particular experimental protocol was to create an affordable and safe way to simulate a DNA fingerprinting experiment. This was done by electrophoresising dye or dye combinations in different concentrations of gelatin and jell-O gel replacements, while altering running buffer levels and concentrations. The protocol that yielded the best results was the gelatin gel at the 0.7 cups of water to one packet concentration, and the pH 8 running buffer concentration at 10% buffer diluted to 250 ml with dH_2O. A chamber was also built using a model that was found in the Flinn ordering catalog. The chamber, gel, and buffer were all used to simulate a mock crime.

THE SCHOODIC POINT DIKE SWARM: A PETROGRAPHIC AND STRUCTURAL STUDY OF DIKE EMPLACEMENT.

Laurie Button

Recent studies concerning models for dike emplacement have emphasized the role of existing structural features within the country rocks and, using magmatic flow indicators, have argued for lateral as well as vertical emplacement, (Philpotts and Asher, 1994). At Schoodic Point on the Maine coast numerous basic dikes intrude the Devonian Gouldsboro granite. The excellent shoreline exposure (and hence lateral and vertical continuity) along with the nature of the host rock make this a superb field area to investigate these emplacement models.

To date over 40 dikes have been mapped along the southern part of Schoodic peninsula. On the basis of their orientation, composition, texture, and size they are subdivided into three varieties designated Types I, II, and III.

Preliminary investigations of the joint pattern in the field area have revealed three main orientations; 1) an ENE-WNW trend, ii) a N-S trend, coincident with the younger Type II basaltic dikes and iii) a NW-SE trend which cuts both the dikes and their granitic host. Therefore it appears that the dikes have been intruded along and utilized some pre-existing fractures in the granite. However flow indicators examined to date reveal ambiguous evidence as to whether this injection occurred laterally or vertically.

SEARCHING FOR A MATCH: A STUDY IN HISTORICAL PETROGRAPHY

Kristie Clapp

Granite quarrying was widespread in Maine from the mid 19th century until the 1950's (Grindle 1977) with Maine granite being exported to major cities across North America and beyond. Many buildings within the state were also constructed using local stone. A project initiated by students from Edward Little High School is attempting to recreate one of these (a house and a barn) into a living history center. However, the granite foundation of the house is incomplete and the source of the building stone is unknown. This study attempts to source, using standard petrographic techniques, the granite used in the foundation. If the source of the granite can be discovered, it will enable the reconstruction to be as accurate as possible.

Typically smaller buildings used stone locally quarried and therefore a number of quarries within a 40 mile radius from the site were examined. These were the Hollowell, Cape Cod, Jay, and Mt. Apatite quarries. Samples from each were described in the field along with any textural variations evident within each quarry. They were then compared to the stone from the Edward Little site using thin section petrography (mineralogy and texture) and modal analysis on stained slabs. Grain size and mineralogy differences eliminated the granites from the Cape Cod, Hallowell, and Jay quarries. Granite from the Mt. Apatite quarry, the closest geographically, is texturally variable but in part compositionally similar to the Edward Little granite.

Therefore to date none of the quarry samples has provided an exact match to the granite used in the foundation. It may well be that the source of this particular granite is not one of the larger quarries, but one of the many smaller pits local to the Auburn area which were opened to provide a limited supply of building stone.

RADON: IT'S HEALTH AND HOME ISSUES, IT'S CONTROVERSY

Thomas Linscott

Radon has always been thought of as a serious threat to public health. Many studies have been done to reach this conclusion and millions of dollars have been spent to correct the radon problem. Much time, energy, and money have been spent to retrofit houses with radon build up, as well as, the time, energy, and money to test millions of homes. The
Environmental Protection Agency (EPA) have held to their views that radon is a great danger to the public. However, in recent years, the linear-no threshold theory as come under close scrutiny. The majority of this scrutiny is from Bernard L. Cohen, by rethinking the methodology used to create the linear-no threshold theory he has come up with confounding factors not originally thought of. These factors can change completely and
profoundly the way we think of radon today. He has concluded that radon in low doses is somewhat beneficial in that it stimulates the bodies natural immune defenses. With the immune defenses working against low dosages the body is thus better prepared to fight against high dose exposures. In no way does this mean that testing should be stopped, because high doses of radon do cause cancer. But the EPA's position on radon is centered on the linear-no threshold theory. From this they infer that with a greater amount of exposure comes the greater amount of cancers. However, Cohen has shown that including the confounding factors the data shows a quit different out come, with increase doses the cancer rates actually decline.

ZEOLITES

Rachel Calder

Natural Zeolites are acting as a toxicity sponge of modern materials in aquacultue, and water treatment; concurrently, heat storage favors the efficiency of the mineral zeolite. Modern usages are as catalysts and adsorbents in molecular sieves. The zeolite, made of volcanic ash and glass, acidic water, and saline solution are deposited out of the welded tuff of volcanoes. The conditions under which the mineral are composed, yielding it's crystallinity, allow them high stability under heat

and pressure. This mobilizes the zeolite into an environmental practicality under conditions such as Cherynobl, MTBE pollution, nitrogen separation/synthesis and the balance of ammonia in our ecosystem.

Analysis of Calcium and Sodium in Food

Matt Michaud

Various foods were analyzed by atomic spectroscopy for their calcium and sodium content. Calcium was measured by atomic absorption, while sodium was measured by atomic emission. The results will be presented in poster form.

The Analysis of Phosphorus in Soft Drinks

Meredith Gauthier, Andrew Duffey, Brandi Gagnon

In a recent study, a connection has been drawn between the unusually high number of bone fractures among women college athletes and the high consumption of soft drinks. One hypothesis states that the phosphorus from these soft drinks effects the women's ability to metabolize calcium in the proper manner.

In this experiment, spectrophotometer was used to measure the phosphorus in popular soft drinks. The results will be presented in poster form.

Which Cooking Method Retains the Most Vitamin C?

Renee LeClair, Abby Friend

Ascorbic acid (Vitamin C) is a well known antioxidant. In this study, the effect of the cooking method on ascorbic acid content of the green pepper was determined. Using the raw pepper as the control, the peppers were baked, boiled, steamed and microwaved. In each case, the ascorbic acid was measured by titration with NBS, using starch as the indicator. The results of the study will be presented in poster form.

The Neutralizing Power of Antacids

John Hoctor, Tim Adams, Tabitha Smith, Amanda Brown, Mark Jones

The results of a study to determine the acid neutralizing ability of antacids will be presented.

Extrasolar Planets

Jeremiah Marden

A research project was done on the emergence of Extrasolar planets in the field of Astronomy. Various aspects of this relatively new field of study were discussed including the possible origin, detection, and classification of these new planets. No lab data was collected because of the obvious expertise and equipment that would be needed to conduct such a lab. Also no inferences were derived from the material that was researched. This project solely focuses on the scientific community's view

on these new findings. This was a group project and my area of research focused on the detection of these planets and the future methods for detecting planets that have been proposed. The infancy of this topic makes information limited but it is one that is extremely exciting for the potential knowledge to be had.

THE TROPHIC STATUS OF WILSON LAKE

Kale Ladd

An assessment and water quality and trophic status was performed on Wilson Lake in Wilton, Maine. Chemical test kits were used to measure phosphate, nitrate, and nitrite concentrations as well as relative alkalinity and hardness. A YSI datalogger was used to measure temperature, dissolved oxygen concentration, pH, conductivity, salinity, and turbidity. Based on the data collected, Wilson Lake is a mesotrophic lake that is progressing moderately to eutrophication.

Venue 6 Nordica Auditorium

FRÉDÉRIC CHOPIN AND HIS WORLD 11:00-12:00

Steven Pane, pianist, with presentations from selected students taking FIA 377 Men, Women, and Pianos.

Nineteen ninety-nine marks the 150th anniversary of the death of Frédéric Chopin. Unlike his contemporaries, Chopin wrote almost exclusively for piano producing a remarkable repertoire from short character pieces to concertos and sonatas. He was also a visible figure among the writers, musicians, and artists of the nineteenth century. Counted among his circle were George Sand, Eugene Delacroix, and Franz Liszt.

We will examine Chopin's world through a series of student presentations alternating with performances of Chopin's music by Steven Pane. Topics will range from interdisciplinary ("Chopin and Poland," "George Sand,"), to specific genres ("Mazurka," "Polonaise"). This lecture/recital will be the culmination of a research project undertaken in the course Men, Women and Pianos. Prior to the UMF Symposium, students will have developed their topic through a class presentations and completed research papers. Students will be chosen for the UMF Symposium based on the quality of their work and relevancy to the other topics.

Venue 7 Mable Hastie Lounge

THE VIETNAM WAR: THROUGH THE EYES OF AMERICAN POETS 9:00-9:45

Doug Rawlings

Rawlings will read a number of poems by men who served in Vietnam and by women and men who were opposed to the war. Very subjective commentary will be provided before and after selected poems. The purpose of the presentation is not to provide an historical perspective; rather, an attempt will be made to personalize the war through the use of poetry.

POETRY READING 10:00-10:50

Wesley McNair

McNair will read selections from his new book of poems, Talking in the Dark.

A READING OF SHORT FICTION 11:00-12:00

Pat O'Donnell, Elizabeth Cooke

O'Donnell and Cooke will read from their fiction, then entertain questions for discussion about fiction writing and the process of finding a story.

THE FAMILY DEVELOPMENT PROJECT 1:00-2:00

Joel King

The Family Development Project was a federally funded project undertaken by Western Maine Community Action which addressed the issue of poverty in rural Maine. It included families from Franklin, Androscoggin, and Oxford Counties. It's goal was to use a whole-family approach with these families and build on their existing strengths. The progress of the families was monitored as the families confronted twelve barriers to achieving self-sufficiency. This presentation provides the conclusions drawn from the three-year evaluation of the project.

"THE WRITINGS OF ATON HYLTON" 2:30-3:00

Dan Gunn and Others

Friends and teachers of Aton Hylton will read from his writings.

Venue 8: Seminar Room

"MATHEMATICAL GAMES" 9:00-9:55

Paul Geis

The use of games is important to learning many subjects in elementary education, perhaps mathematics more than any other. It is deceptively difficult to design a good game: board games with spaces and flash cards, or quiz games with teams and points, need not apply. We will exhibit a variety of student-designed, faculty-designed, and commercially available games, and invite observers to join in.

DEVELOPMENTAL MATH MANIPULATIVES AND ACTIVITIES FOR CHILDREN AGE PRESCHOOL TO GRADE 2. 10:00-10:55

Monica Redlevske and Kathleen Landry

We would like to present the math projects that we created during our Math Concepts for Young Children class this semester. The projects are home made and are created with the child's developmental appropriateness in mind. Each of the activities can be modified to meet the specific needs of the children while reinforcing math skills. We will share these activities by demonstrating how they are used, which skills we are teaching and how they will be implemented in the classroom.

We will be fortunate to have had the opportunity to explore these activities with K-1 children during the Saturday Express Math Fair which will allow us to offer feedback as well.

We will display the math activities and encourage spectators to engage in participation with the materials. We hope this will also encourage people to inquire about the skills we are trying to teach and the significance of each skill.

LET'S HEAR FROM FACULTY, STUDENTS AND PARTICIPANTS INVOLVED IN SEVERAL SERVICE LEARNING COURSES 11:00-11:25

Lucia Swallow, Susan Anzivino, Norma Johnsen, Karl Franson, Nancy Prentiss, and others

The presentation will focus on how Service Learning worked in a variety of disciplines at UMF from the perspective of community partners, students and faculty. The following disciplines will be represented: Psychology/counseling, Women and Literature of Social Reform, Shakespeare, Field Botany, Geography, The Development of math Concepts in Young Children, Art in the classroom, Writing and the teaching of Writing and possibly others.

Students, community partners and faculty involved in service learning courses will discuss the pro's and con's of service learning from their perspective. The focus will be on what was learned, what was gained, what are some of the things to do differently next time. There will be time for discussion among the presenters and with those who
come and partake of this session.

EARLY CHILDHOOD EDUCATION 11:30-12:00

Marcia Nash, Betsy Squibb and Betty Beach

Encouraging democratic initiatives in Central and Eastern Europe and the countries of the former Soviet Union is a principal aim of the Soros Foundation's Open Society Institute. A key endeavor in this democratization effort is reform of Early Childhood Education, moving it from teacher dominated, standardized classrooms to Western, child-centered approaches which encourage free expression, parental voice, and appreciation of individualization.

To support these reforms, changes must also occur in the institutions of higher education which will prepare teachers for new, more democratic classrooms. Children's Resources International, underwritten by the Soros Foundation, sends teams of U.S. faculty with expertise in active learning strategies to work with Eastern European faculty. These international seminars offer faculty the research base, teaching content, active learning strategies and introduction to practicum experiences to move higher education coursework toward more student-centered approaches.

UMF faculty Marcia Nash, Betsy Squibb, and Betty Beach participate in this initiative, and have provided seminars in Lithuania, Macedonia, Czech Republic and, in summer 1999, Romania and Kazakhstan. This poster presentation offers a brief glimpse of these higher education seminars.

"INDIAN CAPTIVITY: TERRIBLE ORDEAL OR BETTER WAY OF LIFE?" 1:00-2:00

Jeanette MacDonald, Allison Brown

Captivity narratives are the stories told by people who had been captured by Native Americans. Through the purpose and the reliability of these narratives are varied, they do provide insight into the way Native Americans were viewed by European - Americans. The subjects of some of these narratives found life with Native Americans intolerable while others voluntarily abandoned their own culture in favor of that of their captors.

Using these vastly different experiences as a basis for argument, we will debate colonial views of Native Americans. Allison will argue from the perspective of the content captives. Jeanette will speak for those who found their captivities unbearable. In the course of this debate we will also call into question the validity of some of the narratives as a basis for historical observation. Our intent is to give the audience an awareness of the existence and value of captivity narratives.

KOSOVO: WHAT IS HAPPENING AND SHOULD WE BE THERE? 2:30-3:00

With NATO planes bombing Yugoslavia and stories of refugees and human rights atrocities filling the news media, it is difficult to understand not only what is happening, but why. Scott Erb, Assistant Professor of Political Science, will give a short talk about the history of the region to explain why this conflict has arisen and describe some of the issues involved.
Scott and a number of political science students will then lead a discussion on the Kosovo crisis to assess the decision to commit NATO forces to the conflict.