Title: *Senior Thesis in Printmaking*
Submitted by: Miranda Currie

Ever since I was a little girl, I have been enchanted by the remarkable world of fairy tales. Most children grow out of this fascination as they mature, however my attraction to this form of storytelling has remained strong. I find that even as an adult, fairy tales speak to something deep inside me; they put words to something that is beyond the grasp of everyday life. Fairy tales are more than just entertainment for children. If taken seriously, they can teach us something about ourselves and the world that we live in.

I have considered myself an artist since a very young age, as I grew up with an art teacher for a mother. My mother is also a fabulous storyteller, and thus art and storytelling have always been intertwined in my mind. Despite this early beginning to my current interests, it was not until my sophomore year at Evergreen that I became really engaged in my work. I took the academic program Foundations of Visual Arts, and as a part of this program I was introduced to the art of printmaking. I immediately connected with the process of etching, in which acid is used to incise lines into a sheet of copper. Ink is applied to the etched copper plate, and it is then printed onto paper using an etching press. For me it was like love at first sight, and I have been working almost exclusively with this medium ever since. I soon realized that copper etching was the perfect method for an investigation into my love of fairy tales, as both fairy tales and etchings seem to come from an ancient and timeless world. I began to make etchings that illustrated little-known fairy tales. Two years have passed and I am still endlessly fascinated and in pursuit of fairy tales.

At the end of last school year, I applied for and was awarded an Expressive Arts Senior Thesis, a competitive program allowing for visual arts students to complete an advanced level project. The Senior Thesis has been the perfect opportunity for me to bring together all of the things that I love into one cohesive project. My goal with this project is to master the complicated process of etching, and then use these skills to bring my ideas and fairy tale research to life through a series of works of art. In the Spring Quarter, I will stage an exhibition of this series of prints in the art gallery at Evergreen. So far, this project has been incredibly time-consuming, and has challenged me to be more focused than I have ever been in my life.

For this project, some of my images will focus on using fairy tale themes to create my own visual stories, while other images will directly illustrate scenes from 15th and 16th century fairy tales. I am also interested in visually exploring the transformation and changes in social significance that these stories have gone through as they have passed from generation to generation. Along with this proposal, I am including a few examples of work that I completed during the Fall Quarter.

I am now in the process of working on this year-long project, using the Printmaking Studio facilities at Evergreen. At the end of Fall Quarter I had six prints completed. Winter quarter will be spent making a bulk of the artwork for this project. During this time I will focus on completing a high quality body of work that is worthy of being shown in an exhibition. I will also spend time researching European fairy tales and the work of artists who have worked with etching and/or with fairy tale illustration. By the first part of Spring Quarter, I plan to have at least 15 high quality prints completed. Part of the beauty of printmaking is that you can make multiple copies of a single image, called "editions". Thus I will make small editions of 5 prints for every image that I create. Throughout this quarter I will have regular meetings with my faculty sponsor, Lisa Sweet. I will also have one larger Senior Thesis Committee meeting, In which a group of three faculty members (Lisa Sweet, Susan Aurand, and Lucia Harrison), will critique and discuss my work. In the Spring Quarter, Lucia Harrison will take the role as my main faculty advisor. At this time, I will begin to focus on preparation for my show. I will

design postcard announcements, posters, and a press release for the show. I will also learn how to mat and frame my prints. During Week 6 of the Spring Quarter, I will hang my work and prepare lighting in the art gallery at Evergreen. May 10 is currently scheduled as my gallery opening, when I will be present to answer questions and greet people who have come to view the show. The show will run for two weeks. At the end of week 8 of Spring Quarter I will take down all of the work, and hopefully feel a huge sense of completion.

As part of the Expressive Arts Senior Thesis, I was awarded a stipend of $250, however this is not enough to cover all of the costs that I will incur over the course of my year-long project. Already, during Fall Quarter, I spent $215.00 of my stipend on paper, copper, and other miscellaneous art supplies. Framing and preparing artwork for an exhibition is costly, if done right. Thus I am seeking additional funding to aid with completion of my project. I will complete the project no matter what, however unless additional funds become available to me,the financial burden will be great, as I rely entirely on federal financial aid to fund my college education. Any additional aid I could receive to help successfully complete this project would help to lighten the load. The project will not be completed until the middle of Spring Quarter, however one grant should suffice to cover the costs.

This project embraces Evergreen's teaching and learning values, in particular those of interdisciplinary study, personal engagement, and linking theory with practical applications. Although the main focus of this project is visual art, I consider it to be an interdisciplinary project, as it involves looking at the fairy tale tradition through cultural, historic, literary and artistic study. Personal engagement is obviously an important aspect of my work, as it is a part of a life-long passion. I also believe that this project is a way of linking theory with practical applications. Rather than simply completing research, I will be delving into the tradition of fairy tales, and then applying what I learn the creation of a series of works of art.

This project will culminate with an exhibition of my work, which I see as an important starting point for a career as a visual artist. I intend to continue my fine arts studies in graduate school, and to eventually work as a professional artist. This project is also a stepping stone into a more specific career in book illustration. My dream is to unearth little-known fairy tales and bring them to life in illustrated books, so that these stories that have survived countless retelling throughout the ages continue to flourish and to enchant new audiences. I would like to preserve and breathe a new vitality into the constantly transforming tradition of fairy tales. Hopefully my work will bring smiles to faces and will connect people to a timeless and remarkable world, filled with magic at every turn. A world which is perhaps somewhere within the one we inhabit every day, if we can only train our eyes and our hearts to see it.

	A	B
1	**Materials**	
2	Printmaking paper -5 sheets at $6.47 each, 10 sheets at $3.00 each, + tax (Graphic Chemical & Ink	$67.59
3	Copper- 832 square inches at $0.075 per sq. in. plus tax (printmaking studio)	$67.64
4	Frosted Mylar for designing prints -10 sheets at $3.50 apiece + tax (printmaking studio)	$37.94
5	**Exhibition in Gallery IV at Evergreen**	
6	Announcements- 500 for $99.00 + shipping & tax (www.adgprinting.com)	$115.90
7	Frames- 15 in various sizes for a total of $156.60+ tax (Daniel Smith Art Supplies)	$169.75
8	Mat Board (32"x40")- 5 sheets at $6.87 each + tax (Daniel Smith Art Supplies)	$37.24
9	Refreshments for exhibition (misc. groceries)	$30.00
10	**Total Amount to Complete Project**	**$526.06**
11	Remainder of Senior Thesis stipend (subtracted from total request)	$35.00
12	**Total Amount Requested**	**$491.06**

Enclosed are samples of work completed in Fall Quarter 2006.
I would like this work back after my proposal is reviewed. Please contact me at currie.miranda@gmail.com or at (360)943-0673, and I will collect the enclosed prints.
Thank you for your time!

Title: ***Replacing Petroleum Based Plastics: Biodegradable Polymers from Starch, Cellulose, and Bacteria***

Submitted by: James Vega & Matt Westman

Replacing Petroleum Based Plastics:
Biodegradable Polymers from Starch, Cellulose, and Bacteria

The use of petroleum based polymers for disposable plastic products poses a considerable ecological problem in terms of landfill capacity use and environmental persistence. While recycling can alleviate some of this impact, only 5% of disposable plastics are recovered and the number of non-degradable containers produced yearly is over 100 million tons.

The goal of our project is the preparation and characterization of novel green polymer blends to explore their suitability as alternative plastics for short-term applications. Our work specifically focuses on the creation of films from poly(hydroxybutyrate-co-valerate), or PHBV, in combination with starch and cellulose acetates. PHBV is a biodegradable polymer produced by bacteria, has similar properties to the petroleum based plastic polypropylene, and someday could be a suitable replacement for petroleum based plastics. However PHBV has two primary drawbacks; it is expensive to produce and it is brittle compared to conventional everyday use plastics.

We began researching PHBV during the fall quarter applied program Industrial Biology and Chemistry, and moved to undergraduate research under Dr. Paula Schofield in winter quarter. While researching primary literature we discovered a journal article that suggested that the combination of modified potato starch (starch acetate) and PHB, a polymer similar to PHBV yet more brittle, could produce a polymer with more flexibility than pure PHB. Additionally starch acetate would act as an inexpensive filler, reducing production costs.

We hypothesized that the combination of starch acetate and PHBV could produce a polymer with more flexibility than PHB based blends and would be fully degradable. As our research progressed we expanded our work to include PHBV in combination with starch acetate derived from corn starch and cellulose acetate. Both corn starch and cellulose are abundant in the U.S.A. and their incorporation could further serve to cut down the cost of the final product. This would help decrease dependence on imported oil by shifting plastic production to a renewable resource. Similar research has been carried out in recent years using starch derivatives and biodegradable plastics but the combination of PHBV and starch and cellulose acetates is at present unique and unexplored.

The initial phase of this project was to perfect the preparation of plastic films suitable for analysis. We now have a suitable polymer blend preparation method to create a series of films: PHBV/potato starch acetate, PHBV/cornstarch acetate, and PHBV/cellulose acetate. By varying the ratios of each compound in the three systems we aim to produce a range of materials with differing properties. We will next determine whether each has improved as expected in comparison to pure PHBV by physical and chemical analytical methods. To achieve this we will utilize infrared spectroscopy and electron microscopy to determine the molecular and morphological characteristics of the blends, and tensile testing to determine their strength and flexibility.

PHBV is degraded by natural bacterial activity in common landfill conditions within five to six weeks. The final phase of our experimentation will be to use *Pseudomonas lemoignei,* a common soil organism that breaks PHBV down into Acetyl

CoA, a compound used by all life for growth and energy. To determine the biodegradable characteristics of the blends we produce we will perform controlled degradation studies in liquid bacterial cultures.

We will present our findings at the American Chemical Society Regional Undergraduate Research Symposium at Pacific Lutheran University on May 13; all of our blending and analyses will be completed by the end of spring quarter.

As dedicated science students throughout our Evergreen education we have successfully completed interdisciplinary chemistry and biology programs including Molecule to Organism and Industrial Biology and Chemistry. During our coursework we have developed the laboratory techniques and critical reasoning skills to perform this novel, advanced research. This project offers us the chance to apply our skills to a subject that covers a wide variety of disciplines and contributes original research to the realm of green chemistry, which we passionately believe is crucial to building a sustainable future. Through the progression of our project we have become adept at theory, interpretation and sample preparation techniques for analysis using Fourier Transform Infrared Spectroscopy and Scanning Electron Microscopy. The instrumentation skills and research experience gained from our project will be valuable assets as we pursue graduate education and research careers focusing on the intersection of chemistry and biology.

The unique learning community at Evergreen has provided us with the rare opportunity as undergraduates to carry out a project of this scope. The interdisciplinary nature of scientific programs at Evergreen has given us the necessary proficiency in organic chemistry, microbiology, and polymer science to fully understand and perform the research we are undertaking. The ability to conduct our research in an independent manner, from theoretical hypothesis to hands-on lab work, has been a significant and rewarding learning experience for us, particularly as our project tackles a real-world problem. Over the course of this academic year, working with scientific staff to set up laboratory space and equipment, and collaborating on technical matters, such as polymer casting methods with fellow students we have found the material and theoretical support necessary to carry our project successfully. Research experience is fundamental to scientific education and hands-on experience is vital to an understanding of biology and chemistry. Evergreen has been an extremely supportive environment in our endeavor to pursue original research on a topic we feel to be personally and socially significant. Although it is a currently common public perception that chemical research is in contrast to environmental concerns, we believe that green polymer research can bridge this gap. Plastics have become an integral part of our society and the development of biodegradable plastics is a simple solution to a growing problem.

It is widely acknowledged that the current levels of energy use and environmental buildup associated with the production and use of petrochemical based plastic, is unsustainable. By displaying the results of our project at the ACS symposium and attempting to publish our findings we will fill a hole in the current body of green polymer knowledge and add to the growing body of research on green polymers conducted at Evergreen. It is our hope that our research will ultimately result in a green plastic comparable in production expense and superior in environmental expense to currently ubiquitous non-biodegradable plastics.

Budget

Materials	
PHBV (10g)	$42.00
Chloroform (4 L)	$34.30
Ethanol (1 gallon)	$24.40
Pseudomonas lemoignei (1 unit)	$237.40
($189.00 per unit, $30 shipping + tax)	
Teflon casting plates	$80.09
(5 @ 15.97 a plate, $10 shipping + tax)	
2007 ACS Puget Sound Section Undergraduate Research Symposium	
Roundtrip gas fare to Pacific Lutheran University	$28.84
(Privately owned vechile mileage rate $0.445/mile at 64.8 miles)	
Symposium registration (2 @ $25.00)	$50.00
Total Request	**$497.03**

Prices were quoted from: Sigma®, ATCC®, DynaLab®,
The Washington State Travel rates section 10.90.20.
Mileage provided by Mapquest.

Title: *Fuel-Efficient Stove PRoject*
Submitted by: Michelle S. Holmes

Grant Application Proposal for My Dream Project
Michelle Setsu Holmes
MES Student

Project Description

Based on previous work in Africa building fuel-efficient stoves with groups in three districts, I aim to construct and promote the use of fuel-efficient stoves with Africans in Tanzania, East Africa. These stoves provide a safe, healthy, environmental alternative to the common method of cooking with three stones over an open pit. They present a valuable means of local technology that utilizes limited fuel resources more productively. For Africans, the benefits of these stoves are tremendous in several areas where resources are scarce due to poverty and environmental conditions. The stove design benefits users in major ways by reducing the amount of fuel wood required for meal preparation, reduction of smoke exposure and cooking time. These advantages positively impact the health of society and health of the environment. The time saved can be allocated to other activities such as school or farming which improve quality of life for families. From an environmental perspective, less fuel wood means that there will be a decline in deforestation rates of these areas, which in the long run improves soils and crop production. The materials necessary to build the stoves are cement, sand, white wash, chicken wire and a clay pot all of which are locally available materials. This local appropriate technology can also serve as a source of small income generation for individuals or students interested in obtaining skills for building and selling the stoves. After families have had time to experience the benefits of the fuel-efficient stove, I plan to conduct interviews and observe stove use to assess efficiency. Quantitative methods will be used to gauge cooking times and fuel use; qualitative interviews will reveal additional social gains. This work will serve as the basis for my Masters Thesis research for MES.

Purpose

This fieldwork would allow me to return to Tanzania and build additional stoves from which I will gather and record data on fuel wood use and cooking time. Through this work, I am building on over two years of prior experience where I spoke the national language and became familiar with the cultural norms. With these critical statistics and information gathered from interviews, it would be possible for me to create graphs that will furnish me with convincing evidence to prove the environmental, health and social benefits of these stoves. My goal is to persuade policy makers and African aid organizations in Tanzania to support the construction of these stoves. Upon completion of my studies, I hope to continue to encourage the construction and use of these stoves as a social entrepreneur. Currently, I have begun working with Evergreen faculty member Nelson Pizarro on a learning contract to prepare this business plan.

Supporting Evergreen's Core Teaching and Learning Values

This project includes four of Evergreen's core teaching and learning values: interdisciplinary study, collaborative learning, learning across significant differences, and personal engagement. The areas of interdisciplinary study encompassed by these fuel-efficient stoves are health & safety, environment and sociology. Less fuel wood is required for cooking which reduces exposure to harmful smoke keeping women and children healthier. Women will be safer because they have less of a chance being victims of gender-based violence since they are spending less time gathering wood. Less wood use means a reduced amount of trees are cut down leading to improved environmental conditions. The extra time created by this efficient method allows women and

children to allocate time to other activities such as school. From this aspect, there will be social improvements to quality of life.

Although the purpose of my project is to teach a new skill to Tanzanians, through collaborative learning I will also re-learn many invaluable skills such as simplicity, empathy, appreciation, patience, acceptance of different cultural norms and be reminded of the power of Mother Nature.

Africa and America are poles apart, as previously listed this project will clearly involve learning across significant differences.

Significance

Implementing fuel-efficient stove use in communities of Tanzania will help to ease the daily work involved in meeting basic needs. The continent of Africa is a country with extreme environmental hardships and limited energy resources. As populations increase and global climate change continues, the continent will need to adopt alternative means of cooking to cope with limited biomass for cooking fuel. This fieldwork will address this matter with improvements that will impact quality of life and community capacity that in the end create a stronger nation. On a global scale, the entire population and planet reap the environmental benefits of a reduction in deforestation activity. This fieldwork will enrich my graduate level studies and make it possible to complete my MES thesis with a concrete foundation. Furthermore, other students at Evergreen will benefit from my knowledge through presentations and products that result from this fieldwork.

This financial support from Evergreen will serve as a seed to share valuable knowledge where it is needed, to learn from people of another culture, and lend a hand to the people of another continent who happened to be faced with hardship by chance alone.

Timeline:

Jan-April 2007

-Continue to prepare details, search for project funding and organizations with which to collaborate
-Literature review in MES core class Population Energy and Resources
-Continue to communicate with local government officials in designated area of fieldwork
- Purchase plane ticket and make visa arrangements (April)

May 2007

-Prepare final details for fieldwork: gather equipment, immunization prep, firm up research questions, begin to compose interview questions
-Make calls to Tanzania to confirm housing logistics with local government officials

June- August 2007

-Mid June depart to conduct fieldwork
-Select families for stove construction, purchase materials, construct stoves, compose interview questions, conduct interviews, collect quantitative data, write field notes, begin preliminary analysis, continue communicating with Karen Gaul and Nelson Pizarro at The Evergreen State College.

Sept. 2007

-Complete work and return mid September; work on MES thesis during second year in the program.

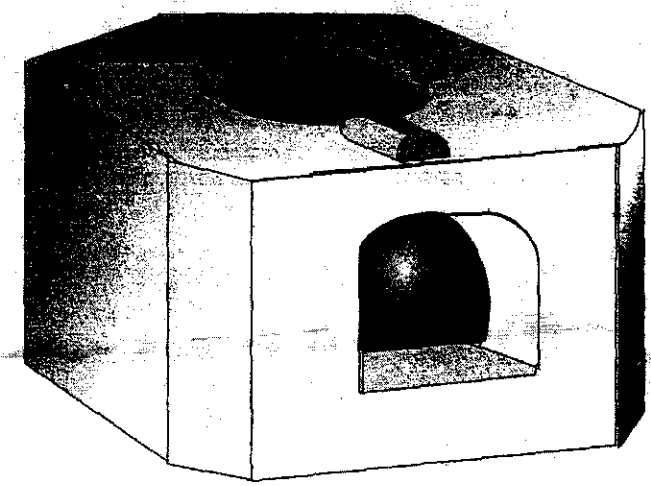
Budget List for Fuel-Efficient Stove Project June-Sept. 2007

Evergreen Dream Project Grant Michelle Setsu Holmes

ITEM / ACTIVITY	DESCRIPTION	COST ESTIMATE	Sum
Transport to East Africa	Round trip plane ticket from Seattle,WA to Arusha, Tanzania	$3000.	$3000.
In country transport	1.) 4 round trips visit to city for internet use 2.) Weekly trips to town for food supplies	1). 4@ $16.00 = $64.00 2.) 9 @ $1.00 = $9.00	$73.00
Lodging	Travel to-from project location, city and town. While conducting fieldwork, I hope to stay in my old Peace Corps home that is not in use at this time. Logistics are being set up at this time.	12@ $15.00	$180.00
Food & Water		12 weeks @ $30.00= $360.00	$360.00
Home Supplies	Stove, Lantern, Bed, Cooking Pots and Buckets	$125.00	$125.00
Communication Costs	Phone and Internet	Phone=$70.00 Call Cards= 8 @ $5.00=$40.00 Internet 4 @ $1.00= $4.00	$114.00
Project Supplies	Construction of 4 wood stove frame molds 10 bags of cement (will build 50 stoves) 30 bags of white wash 30 yards of wire mesh 2 pair wire cutters	4@ $15.00= $60.00 10@ $12.00= $120.00 30@ $3.00= $90.00 30@ $1.00= $30.00 $12.00	$312.00
Entry Visa			$150.00
Health Insurance		$350.00	$350.00
		Grand Total	$4664.00

*** Cost estimates based on previous trip to Tanzania 2003-2005, plane ticket cost based on on-line searches

Construction of a Cement stove



Cement Stove

Materials

1. Cement	1	metal basin
2. Sand	3	metal basin
3. White wash /lime	1	basin
4. Chicken wire	½	meter
5. Used or cracked clay pot	1	
6. Wooden Frame		

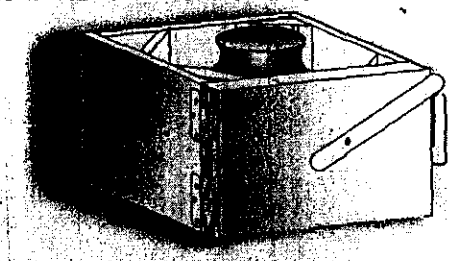
Tools

1. Shovel
2. Trowel
3. Metal basin
4. Water bucket
5. Pliers / something to cut wire

Construction Procedure

Put the wooden frame on a clean flat ground.
Surround the pot with chicken wire leaving a space of 1 inch all around and leaving a hole where the firewood will go.
Cut a hole for fire wood 5 inches on the wire.
Mix cement, Sand and whitewash (1:1:3)
Pour an inch of concrete into the bottom of the frame to form a base.
Put the clay pot into the center of the frame.

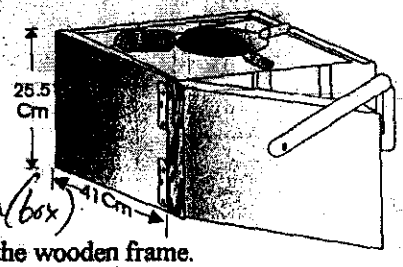
2 full shovels whitewash
2 full shovels Cement
6 full shovels sand.



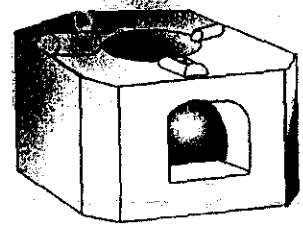
(*) If the pot is small, ongeza 1 or 2 shovels of each

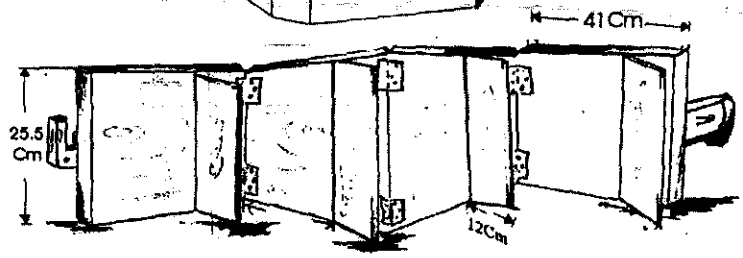
Pour the mortar into the frame until you get to the top of the clay pot.
Bang the sides of the frame to pack the mortar down.
After 30 minutes, build three bumps for a cooking pot to sit on.

You can build the mafigas right away after filling the sanduku (box)



After 2 hours open the wooden frame.
Cut the door for the firewood.
After 24 hours begin to water the stove for six days.
Using a nail and hammer or stone, bang through the clay pot to create an opening for fire wood. Pour water on the stove for 7 days.
After 14 days you can start to use the stove.





Title: *Women's Health Festival*
Submitted by: Anna Prentice & Katherine Murphey

Women's Health Festival Proposal

This quarter I am planning on coordinating a Women's Health Festival, as part of my program Community Action and Design. I will be working with student groups on campus, such as VOX and Women's Resource Center, to plan and carry out the festival. We would like it to be an all day event, including numerous speakers, and a resource fair. Topics such as global health perspectives, STD prevention, fertility awareness, and fun safe sex practices will be covered. Our ultimate goal is to increase awareness and encourage discussion of topics that are often considered to be taboo to discuss in the public sphere. We will use tools to inspire discussion such as education through videos and lectures, access to community resources, and open seminar. We are also hoping to encourage the strengthening of the connection between campus and local community.

This project will enhance my education by providing me with real life planning experience which I can apply to future jobs. As a graduating senior I have lots of experience working with other students and faculty in putting on small projects, and completing research. Unfortunately I have not had the opportunity to express my creativity through a larger project, coordinating this Women's Health Festival will give me this opportunity. The knowledge and skills I am enhancing with this project will assist me in finding future employers. Working in the public health field is my future goal, and my experience this quarter closely relates to the types of work I hope to be participating in.

This quarter I will apply all Evergreen's Five Foci of Learning. I will participate in Interdisciplinary Study by pulling together related issues in Women's Health. Collaborative Learning will take place as I work with other students, faculty, and community groups. I will learn across Significant Differences as I encounter conflicting ideas with planning and implementation from the individuals participating. I will be Personally Engaged as I learn to express my ideas in relation to pressing Women's Health topics in a positive format. I will connect Theory with Practical Applications by taking the subjects I have learned about in prior programs and use them to produce an event where others can participate in learning.

Planning for the event has already begun and this is our tentative schedule:

April 16-22: Meetings with participating partners, scheduling speakers, advertisement design.

April 23-29: More planning meetings, advertising material production, booking space on campus and arranging for media, production of a final schedule.

April 30-May 6: Final arrangements, finishing of advertising materials.

May 7-13: Advertising Campaign. Includes Evergreen, SPSCC, St.Martins, and local community.

May 14-21: Further advertising, final preparations.

May 23: Women's Health Festival at The Evergreen State College campus.

Budget:

Materials:

Advertising-
T-shirts: $12.00 a piece x 15 = $180.00
Posters (color) 8x11: $00.60 each x 150 = $90.00

Media Equipment-
Video Presentation (Seminar II Building): $55.00 each x 4= $220.00
Mic Equipment (Seminar II Building): $10.00 each x 4= $40.00

Speakers-
Herbal Alternatives: $75.00
Planned Parenthood: $125.00
Fertility Awareness: $250.00

Total: $980.00

Title: ***Characterization of a new virus found in the Common Marmoset Monkey***

Submitted by: Erin Mullaney, Simon Newkirk and Olivia Fabrizio

Project Description and Significance.

We are requesting funds to support research of a novel retrovirus that we have discovered in the Brazilian Common Marmoset, *Callithrix jacchus*. We have named this virus C.j.Erv. This new monkey virus was found by searching an online database of genes in an attempt to find viruses closely related to Human Endogenous Retrovirus-W (HERV-W). This human virus plays a critical role during human embryo development; HERV-W causes cell fusion through interaction with its cell surface receptor, leading to the formation of the human placenta. This event in development is conserved in primates, although it has not been well characterized in more distantly related primates such as the Common Marmoset. If our C.j.Erv does indeed use the same receptor as HERV-W to infect cells, we would have established an evolutionary relationship between these two viruses. Understanding how C.j.Erv functions during early embryogenesis in marmosets will provide the scientific community with better insight into how these kinds of viruses play a role in our own development. Moreover, it may help us to better understand infertility associated with improper placental formation.

HERV-W has also recently been shown to be associated with human diseases such as psoriasis, schizophrenia and multiple sclerosis. In 1997, HERV-W was discovered in the cerebralspinal fluids from patients with multiple sclerosis (1) as well as in patients experiencing their first episode of schizophrenia (2). These associations imply that the virus is usually dormant, but under certain conditions it becomes active, playing a role in these types of diseases. Studies of C.j.Erv may help us to better define how these viruses may cause disease.

Additionally, if we show that C.j.Erv uses a human cell receptor for infection, there may be a public health concern associated with this virus. It is known that several devastating human diseases such as AIDS, Ebola hemorrhagic fever, and monkeypox virus originally came from primates and were transmitted to humans because of our close evolutionary relationships with these non-human primates. In fact, HIV, which causes AIDS, was transmitted to humans on at least three separate occasions when local people hunted primates for bush meat. It is possible that even today this type of event could occur, causing a new pandemic. Thus, our research with this new virus may also help the scientific community and global public health officials to prevent such events from happening.

Project Design, Timeline and Milestones

Upon receiving grant funds, we will buy a subset of the marmoset DNA containing C.j.Erv from Children's Hospital Oakland Research Institute (CHORI). This DNA comes in the form of a bacterial artificial chromosome (BAC); we will use this BAC to amplify the C.j. envelope gene using Polymerase Chain Reaction (PCR). This gene will be cloned into a bacterial plasmid vector. We can then deliver this vector to cells in a Petri dish using calcium phosphate transfection; these cells will contain all components of a retrovirus except for the envelope protein. By adding the C.j.Erv envelope protein we will produce virus bearing the envelope coat from C.j.Erv. Because the envelope coat is responsible for binding the cell surface receptor, we can test whether this new viral envelope uses the HERV-W receptor. The tissue culture cells with the HERV-W receptor will be provided by Dr. Dusty Miller at the Fred Hutchison Cancer Research Institute in Seattle WA. Entry into cells will be determined using a color-indicator marker carried by the virus that will turn the cells fluorescent green after infection. At the same time, we can also challenge cells that do not have the HERV-W receptor. Our prediction is that only the cells expressing the HERV-W receptor will be positive for infection, indicating that infection of C.j.Erv occurs through C.j. envelope binding of the HERV-W receptor.

The first milestone of DNA isolation and cloning will be done during weeks 5 and 6 of the Spring quarter. Cells will be transfected and virus collected during week 7. Repeated infections will be done in weeks 8 and 9. After the results have been collected, we will use the rest of the quarter to prepare our findings for publication. The members of this team have agreed to continue the work during the summer if the data lead to potential publication.

Adherence to Evergreen's Teaching and Learning Values

The basis of this project involves cross-disciplinary work in bioinformatics, virology and molecular biology. This experiment requires that we integrate theory with practical applications that we have learned during the Molecule to Organism program. Throughout our careers at Evergreen, each member of this team has devoted significant dedication to gaining extensive knowledge and laboratory skills in preparation to study as a self-directed research team. After this quarter, we will have new skills that we can teach to other students who would like to do research using live cells.

This type of educational setting has provided a forum for us to teach as well as learn. In winter quarter, we worked as a collaborative team doing background literature research and teaching information about our research topic to each other. Although we come from different educational backgrounds, we have developed into cohesive group capable of cooperating on new and challenging material. Group work will teach us to communicate effectively with each other about a range of issues such as dividing tasks to dissolving disagreements. Interpersonal skill development as a science student will prove valuable in other settings beyond undergraduate education.

As Evergreen students, we strive to use our undergraduate scientific education to become critical thinkers who contribute work to change lives for the better. In reciprocation for our education, we believe that publication of our research will contribute to Evergreen's growing reputation as a highly regarded scientific institution where undergraduates have unique opportunities to gain research skills and be creative. Additionally, we anticipate that this project will provide future opportunities for Evergreen students to continue research in this area.

Significance to the Team's Careers

The practical and professional outcomes of this type of work and publication in a specialty scientific journal are many. Publication can definitely give each of us a "leg-up" over the tremendous pool of competitive graduate and medical school applicants. For those of us who wish to do internships or gain employment in a professional laboratory, knowledge of how to carry out some of the procedures that we will use can also provide a competitive advantage to attain our career goals.

In Summary

Thank you for taking the time to consider our proposal; we hope that you've enjoyed reading our request. If you have any questions either general or technical, please contact us at muleri12@evergreen.edu.

Sincerely,

Erin Mullaney, Simon Newkirk, and Olivia Fabrizio

References:

1. Blond JL, Beseme F, Duret L, Bouton O, Bedin F, Perron H, Mandrand B, Mallet F: **Molecular characterization and placental expression of HERV-W, a new human endogenous retrovirus family.** *J Virol* 1999, **73**:1175-1185.

2. Perron H, Garson JA, Bedin F, Beseme F, Paranhos-Baccala G, Komurian-Pradel F, Mallet F, Tuke PW, Voisset C, Blond JL, Lalande B, Seigneurin JM, Mandrand B: **Molecular identification of a novel retrovirus repeatedly isolated from patients with multiple sclerosis. The Collaborative Research Group on Multiple Sclerosis.** *Proc Natl Acad Sci U S A* 1997, **94**:7583-7588.

Budget Information

The following supplies can be obtained from online sources. All of the remaining material can be used by the Evergreen science department for further projects.

Equipment	Cost	Source	Rational
Pen-Strep Glutamine	$35.00	Biocompare	Needed for isolating the plasmid that we want on a growth medium.
BAC Clone	$95.00	CHORI	The BAC clone is going to be the source of our Callithrix Jacchus ERV DNA.
Digestion Enzymes	$25.00	Enzyme essentials	The digestion enzymes will "cut" our vector and PCR product so we can insert the PCR fragment into the vector.
PCR primers	$41.00	Invitrogen	The PCR primers allow us to amplify our ENV gene of the identified ENV.
6-Well Tissue culture dishes	$60.00	Advangene	Specialized plates for the tissue culture.
Dulbeccos	$24.40	Sigma Aldrich	Phosphate Buffered Saline for supporting the growth of a broad range of mammalian cell lines.
DNA polymerase	$58.00	McLab	Needed for polymerase chain reaction.

Anticipated shipping and handling costs: $80.00

Project Total: $418.40

The following supplies will not cost anything and are being provided by Dr. Clarrisa Dirks, courtesy of her colleague.

-Packaging line
-Rdr selector cells

This experiment will also make use of the following equipment/tools (provided by the M2O faculty and Evergreen State College).

-PCR
-Incubateurs
-Centrifuge
-Micropipettes
-Petri dishes
-Gel electrophoresis

Disclosure Statements: This project will not involve any animal or human testing. The products used will not be any more hazardous than those used in a typical biolab. The appropriate precautions to contain all microbial and chemical agents will be used and proper disposal through the Evergreen biohazardous waste process.

Title: ***From the Classroom to the Laboratory: Sequencing Trim-5 alpha, an HIV Inhibitory Protein***

Submitted by: Melissa Pickett, Jacqualyn Burnson, Katie Leicht, and Joseph Lieberman

The Evergreen State College Foundation
Activity Grant Committee

Re: From the Classroom to the Laboratory: Sequencing Trim5-α, an HIV Inhibitory Protein

Dear Committee Members:

Project Description: Over 40 million people worldwide are currently infected with Human Immunodeficiency Virus (HIV). Recently, scientists have discovered Trim5-α, a protein that inhibits HIV and Simian Immunodeficiency Virus (SIV). To better understand how Trim5-α functions to inhibit virus infection, our research team would like to sequence the Trim5-α gene from lemurs. In doing so, we will be able to infer the evolutionary relationship of the protein with those in humans and non-human primates. This will significantly contribute to research seeking to create affordable inhibitors for the treatment of Acquired Immune Deficiency Syndrome (AIDS). In order to complete this task, we will create primers, isolate and amplify Trim5-α through reverse transcription – polymerase chain reactions (RT-PCR), and prepare the DNA to be sequenced. The sequence data from the lemur Trim5-α will then be compared to Trim5-α sequences of other primates using computer-software programs. The first phase of the work using bioinformatics will be completed in Winter Quarter of 2007. The project will reach completion, and potentially result in publication, by the end of Spring Quarter of 2007.

Importance to the Applicants: Jacqualyn Burnson, Katharine Leicht, Joseph Liberman, and Melissa Pickett are enrolled in Molecule to Organism for the duration of the 2006-2007 academic year. In Spring Quarter of 2007, students will be offered the opportunity to perform independent-undergraduate research, and this project will be performed in conjunction with the program. Each team member is a dedicated student who has excelled in this rigorous program because of their intellect, desire, and dedication to pursue a career in the sciences. Our research team has a diverse background in the physical and biological sciences, and this project will ensure that the education that we have undergone will be applied in a laboratory research setting. The project has potential to lead to publication because Trim5-α in lemurs has not yet been identified and analyzed. Our drive, knowledge, and intellectual capabilities will be challenged in preparing and designing the research, and our laboratory and scientific writing skills will be put to the test in obtaining and communicating our results that we can defend to the scientific community.

Additionally, the project has personal and professional significance to the group as the experience and knowledge that is gained in this project will further our understanding of HIV and AIDS, equipping our group members for their graduate careers in medical school and research. The fight against HIV and AIDS is in the forefront of the medical and scientific communities. We are joining this effort, and laboratory research will provide the means to develop as scientists and help to prepare us for graduate school.

Evergreen's Values: Science is a community based on collaboration where participants are both student and teacher. Each participant in this research project will contribute to our goal by assisting each other's understanding through our respective backgrounds in the sciences. Our team will have to overcome individual differences in order to learn from each other, not only to propel the project to completion, but to effectively communicate and overcome interpersonal

differences as well. None of the participants have worked together in the past, and so we will all need to learn each other's strengths and be able to utilize them for the project. Pragmatism will guide us in cooperation toward the common goal of linking theory in the classroom to application in the laboratory. Our conclusions after the sequencing of Trim5-α will be driven by each student's ability to communicate with each other and overcome differences in opinion to reach compromise and validity to arrive at a conclusion on the basis of reason.

The nature of the project is, in itself, interdisciplinary, as it draws from the fields of biochemistry, cellular and molecular biology, and virology. RT-PCR incorporates principles of biochemistry, and we will have to apply the knowledge of chemical reactions to the biological systems of viruses and host organisms. Our knowledge will be challenged and enhanced by applying previous experiences in the laboratory and classroom to performing the tasks that will lead to the completion of this project. We will transition from the outlined laboratories provided from the faculty in Molecule to Organism to designing and performing our own work from a hypothesis. We will further have to defend the project not only to our peers in Molecule to Organism, but also to the scientific community at large when we go on to publish this work. These are critical steps in the evolution of a student's academic career to become a scientist.

Project Significance: Trim5-α is a protein that has been demonstrated to restrict HIV infection in cells. Previous examination of several cell lines in primates indicated *Lemur catta* as a good candidate to prevent HIV and SIV infection, but the reasons are unknown. By sequencing out the Trim5-α protein in *Lemur catta*, we may be able to identify Trim5-α protein as responsible for this characteristic. The determination of amino acid differences between human and non-human primates' Trim5-α gene and that of *Lemur catta* would provide great insight into the interactions of the virus and the cell. Upon completion of this project, further research will be required to test the *Lemur catta* Trim5-α in the presence of retroviruses, such as HIV and SIV. If the protein can successfully inhibit retroviral infection, it will provide the scientific community with a new approach for the treatment of HIV.

Our project highlights the unique atmosphere and educational experience that The Evergreen State College offers to its students. We are all excited and grateful for the opportunity to perform and publish this research. We ask for your assistance and support in this exciting endeavor and hope that you look favorably upon our proposal. Thank you for your time and consideration.

Budget:
From the Classroom to the Laboratory:
Sequencing Trim5-α, an HIV Inhibitory Protein

Item	Quantity	Price	Supplier
General Supplies			
Plug Pipettor Tips	10 Boxes	90.00	VWR
RNA Isolation – Maniatis Method			
Lemur Catta – Cell Line		85.00	Coriell
Nonidet P-40	5x10ml 10% Solution	72.00	Roche
Dithioreitol	1g	26.91	Fisher
DEPC	5mL	27.50	Sigma-Aldrich
RT-PCR			
SuperScript III One-Step RT-PCR System with Platinum Taq High Fidelity	25 Reactions	184.00	Invitrogen
PCR-Primer		30.00	
DNA Sequencing	8 @ $6.18	49.44	Univ. of WA
	Total Budget Request:	$564.85	

Additionally, the following items are not included in the budget, because they have already been obtained:

EDTA, Tris Hydrogen Chloride, Sodium Chloride, Potassium Chloride, Sodium Phosphate Dibasic, Potassium Phosphate Dibasic, Magnesium Chloride, DNase I, phenolchloroform, and Sodium Acetate.

Title: *Myrmelachista Ants:* An Evolutionary Story Told

Submitted by: Daniel J. Cox, Kira Kranzler, Nick Bromen, and Brendan McGarry

Project Description: One reason why evolutionary biologists study ants is because they provide insight into the early speciation processes of organisms. The ant genus of particular interest to us is *Myrmelachista*. While many of the workers from the different species within this genus are difficult to tell apart physically, a genetic analysis would make the species boundaries clear. Our project aims to compare the genetic divergence among fourteen species of *Myrmelachista* in order to better understand the phylogenetic relationships between them. To accomplish this we will analyze the "wingless" and "long-wavelength rhodopsin" genes because they have proven to show accurate differentiation in ant species. The sequences for these genes will be obtained by extracting DNA from each ant species, amplifying the genes of interest using polymerase chain reactions (PCR), and purifying the DNA in preparation for sequencing. Gene sequences from this experiment will be used to characterize ant phylogenies, thereby correcting errors associated with current species boundaries. This project will be completed by the end of spring quarter at which time we hope to publish our findings.

Personal significance: We began our college careers with a passion for the environment and the desire to become zoologists and environmental scientists. We have focused much of our time studying science over the past few years and are combining our collective experience from Evergreen programs such as Introduction to Natural Science, Molecule to Organism, and studies with John Longino in entomology. Through these endeavors, we have gained invaluable knowledge and experience in the laboratory. However, the project we propose will be our first undertaking of independent laboratory research and will serve as a huge opportunity to further ourselves in preparation for future careers in science. We are thrilled at the prospect of directing our own experiments; we will learn to plan, trouble shoot, and interpret new data, rather than working from a recipe prepared for us by our professors. The ants which we propose to study have never been genetically described and this research will be of great significance to the scientific community. Upon concluding our investigation, we intend to publish our findings. Finally, this project will mark the transition for the four of us from students of science to contributing scientists and will serve as an important part of our education as each of us makes the next step from Evergreen to graduate school. Admission into a good graduate program requires that we have conducted independent research.

Learning values: This project will hold to Evergreen's core learning values of linking theory to practice through a collaborative learning process. The study was designed by the four of us in collaboration with individuals at the University of California (UC), Davis Department of Entomology. We have been exchanging ideas with doctoral students at UC Davis to find the most beneficial study we can do within a ten week time frame. In conjunction with their recommendations, the methodologies and theory involved in the process of this project are directly gleaned from the Molecule to Organism program and our literature research. This project will emphasize collaborative interactions between the four of us as we learn to work together as a cohesive team. We have each come into this project with different past experiences, varying perspectives, and work styles. Throughout our work, we must form a consensus in our decision making, refine our team dynamics, and learn to rely on our collective individual strengths to reach our full potential. Our project will be interdisciplinary through its application of our prior studies and laboratory techniques in the fields of biology, chemistry, and bioinformatics.

Project significance: Understanding the evolutionary relationships of ant species is important because it helps biologists answer questions about evolution. Sympatric speciation is how one species evolves into two other species in the same local area without physical barriers. This is a

probable means of speciation in *Myrmelachista*. This process is not well understood and a phylogenetic tree of these ants may provide new insights into these events and inspire new studies in this area. The techniques we plan to use in this study are applicable to all organisms, but ants are a great model organism because they are inexpensive to capture and preserve plus, easy and safe to work with in the laboratory.

Ants quietly rule the world. Along with being distributed throughout the planet, ants play a major role in multiple ecological niches. Ants thrive in nearly every possible terrestrial ecosystem and the study of these tiny creatures may provide valuable insight into the condition of our planet. Ants make up 33% of tropical biomass and are the primary herbivores in these regions. Ants currently play an important role as indicators of the human impact on the environment, helping mining companies to assess the disruption caused by their operations. There are an estimated 20,000 species of ants, each with its own unique life style.

Ants of the genus *Myrmelachista* lead a remarkable arboreal life that has been poorly understood until recently. These ants are very inconspicuous, and until others recently discovered their nesting behavior, very few species were known. They observed that these ants lived within cavities of living avocado tree stems. Prior to this discovery, they were rarely collected simply because no one thought to look there. Many species of Myrmelachista still await discovery. These ants are responsible for the growth of dense monocultures of avocado trees, called "devil's gardens," by killing all other surrounding plant species by spraying formic acid on the saplings. The ants that we propose to study have thus far been described only in terms of their physical characteristics. In his 2006 publication, Dr. John Longino of The Evergreen State College was the first to describe many of the species with which we will be working.

Our construction of a *Myrmelachista* phylogenetic tree will be the first genetic description of the species within this genus. The tree may correct possible errors made in previous delimitations of these species and lead to new studies of *Myrmelachista* systematics and other inquiries in this field. This project readily lends itself to Evergreen by furthering the school's reputation in the molecular and organismal sciences. It is very significant to us as students, as this will not only be a publishable study, but will give us a better understanding of this very interesting group of animals.

Budget justification: The materials and services listed on the attached table are needed for proper extraction and sequencing of chromosomal DNA. Extractions of DNA will be performed with a Qiagen DNeasy Kit. The extracted DNA will be amplified through polymerase chain reactions (PCR), using a PCR Master Mix with high-fidelity Taq-polymerase to assure yield. Each specimen's DNA product will be verified with the use of agarose gels then purified upon verification. The Department of Biochemistry at the University of Washington will perform DNA sequencing for our 28 extracted samples.

Many materials have already been acquired from Evergreen labs and will not need to be purchased. These include: eppendorf tubes, pippet tips, tissue homogenizer, ethanol, ethidium bromide, 100 kb ladder, ice/ice bucket.

Ant specimens were captured and generously provided by Dr. John Longino for use in this study.

Budget proposal for: *"Myrmelachista* Ants: An Evolutionary Story Told."

Project Budget:					
Supplies	**Model #**	**Quantity**	**Price**	**Shipping**	**Vendor**
DNA Extraction					
cDNA Primers	ReadyMade Primers™	4 primers	$40.00	$16.00	Integrated DNA Technologies
DNeasy Kit	Cat. No. 69504	50 reactions	$123.00	variable	Qiagen
DNA Amplification					
Agarose Gel	N/A	~15 Gels	$10.50	N/A	Evergreen Lab Stores
PCR Master Mix	Cat. No. F-531S	100 reactions	$162.00	$16.00	New England BioLabs, inc.
DNA Sequencing					
UW Sequencing Rate	Reaction & Analysis	28 samples	$168.56	N/A	University of Washington
Total Budget Request:	**$536.06**				

Bibliography

Bolton, B. (2003) Synopsis and classification of Formicidae. Memoirs of the American Entomological Institute. 71, 1–370.

Longino, J. T. (2006) A Taxonomic review of the genus *Myrmelachista* (Hymenoptera: Formicidae) in Costa Rica. Zootaxa 1141:1-54.

B. Hölldobler and E.O Wilson. *The Ants*, The Belknap Press of Harvard University Press, Cambridge, MA (1990) pp. 197–208. .

Shoemaker D, Ahrens M, Ross K (2006) Molecular Phylogeny of Fire Ants of the Solenopsis saevissima Species-Group based on mtDNA Sequences. Molecular Phylogenetics and Evolution 38: 200-215.

ReadyMade Primers™

The Highest Quality

- Each primer is > 95% pure to insure optimum performance
- Identity is confirmed by Mass Spectrometry
- Purity is established by Capillary Electrophoresis

Easy Ordering

- Order online
- Email the order to orders@idtdna.com
- Fax the order to 1-319-626-8444

Only $10 each!

- 10 µg of purified product
- Enough for 100 sequencing reactions
- Fast turnaround, subject to in-stock availability

ReadyMade Primer™ Name	Sequence	TM	Anhyd. Mol. Wgt.	pmoles 10µgs
16S rRNA For	AGA GTT TGA TCC TGG CTC AG	55.2	6148.0	1626.7
16S rRNA Rev	ACG GCT ACC TTG TTA CGA CTT	57.4	6372.2	1569.4
3' RACE PCR	GGC CAC GCG TCG ACT AGT AC	60.6	6103.0	1638.5
Anchored Oligo dT (20)	TTT TTT TTT TTT TTT TTT TV	39.2	6028.3	1658.7
Anchored Oligo dT (22)	TTT TTT TTT TTT TTT TTT TTV N	42.8	6641.4	1505.7
BGH Reverse	TAG AAG GCA CAG TCG AGG	54.0	5597.7	1786.4
Bluescript KS	TCG AGG TCG ACG GTA TC	53.3	5226.4	1913.4
Bluescript SK	CGC TCT AGA ACT AGT GGA TC	52.4	6117.0	1634.8
[redacted]				
EGFP-C	CAT GGT CCT GCT GGA GTT CGT G	61.2	6773.4	1476.3
EGFP-N	CGT CGC CGT CCA GCT CGA CCA G	67.2	6657.3	1502.1
G3PDH For	ACC ACA GTC CAT GCC ATC AC	58.6	5991.0	1669.3
G3PDH Rev	TCC ACC ACC CTG TTG CTG TA	59.7	6003.9	1665.7
IL-2 Exon 3 For (7329)	CTA GGC CAC AGA ATT GAA AGA TCT	56.3	7369.9	1357.0
IL-2 Exon 3 Rev (7652)	GTA GGT GGA AAT TCT AGC ATC ATC C	56.8	7681.0	1301.9

M13 Forward (-20)	GTA AAA CGA CGG CCA GT	53.0	5228.5	1912.6
M13 Forward (-41)	CGC CAG GGT TTT CCC AGT CAC GAC	65.5	7289.8	1371.7
M13 Reverse (-27)	CAG GAA ACA GCT ATG AC	47.3	5212.5	1918.3
M13 Reverse (-48)	AGC GGA TAA CAA TTT CAC ACA GG	57.2	7065.7	1415.2
Neomycin For	CTT GGG TGG AGA GGC TAT TC	55.6	6204.1	1612.0
Neomycin Rev	AGG TGA GAT GAC AGG AGA TC	54.0	6255.1	1598.7
Oligo dT, 15mer	TTT TTT TTT TTT TTT	29.7	4501.0	2221.7
Oligo dT, 16mer	TTT TTT TTT TTT TTT T	32.1	4805.2	2081.0
Oligo dT, 18mer	TTT TTT TTT TTT TTT TTT	36.0	5413.6	1847.3
Oligo dT, 20mer	TTT TTT TTT TTT TTT TTT TT	39.1	6022.0	1660.6
Oligo dT, 20mer w/ 5' Phos	/5Phos/TTT TTT TTT TTT TTT TTT TT	39.1	6101.9	1638.8
PCMV Forward	CGC AAA TGG GCG GTA GGC GTG	64.8	6552.3	1526.2
pET 3'	CTA GTT ATT GCT CAG CGG	50.6	5505.6	1816.2
pET 5' (T7)	TAA TAC GAC TCA CTA TAG G	45.3	5795.8	1725.3
pET Upstream	ATG CGT CCG GCG TAG A	56.7	4922.2	2031.4
pGEX 3'	CCG GGA GCT GCA TGT GTC AGA GG	65.2	7145.7	1399.3
pGEX 5'	GGG CTG GCA AGC CAC GTT TGG TG	67.0	7136.6	1401.1
Random Hexamer	NNN NNN	<10	1791.7	5581.3
Random Hexamer w/ Biotin	/5Bio/NNN NNN	<10	2198.2	4549.3
ROSA26 Promoter For	AAA GTC GCT CTG AGT TGT TAT	53.2	6451.2	1550.1
ROSA26 Promoter Rev	GGA GCG GGA GAA ATG GAT ATG	56.3	6624.4	1509.5
SP6 Promoter	TAC GAT TTA GGT GAC ACT ATA G	50.0	6773.5	1476.2
SP6 Upstream	ATT TAG GTG ACA CTA TAG	42.8	5537.7	1805.8
T3 Promoter	AAT TAA CCC TCA CTA AAG GG	50.4	6094.0	1640.9
T7 Promoter	TAA TAC GAC TCA CTA TAG GG	48.3	6125.0	1632.5

Shipping Information

- **Standard overnight delivery within the U.S. is $16 for st[redacted]**
- Standard overnight delivery within Canada is $22 per order for standard one pound shipments.
- Priority morning delivery is $20 per order in the U.S. and $25 per order in Canada for standard one pound shipments.
- Domestic shipments on blue ice are $35 per box.
- Domestic shipments on dry ice are $45 per box.
- Please inquire for prices on International shipments.

Payment Terms

- Net 30 days.
- Catalog prices are subject to change without notice.

Product Catalog
- New
- All Products
- Assays
- Automation
- DNA
- RNA
- RNAi
- PCR
- Protein
- Transfection
- Lab Essentials

Products by Application
Products by Lab Focus

DNeasy Blood & Tissue Kit

For purification of total DNA from animal blood and tissues, and from cells, yeast, bacteria, or viruses

- Reproducible DNA purification - standardized method for reliable results with a variety of samples
- High yields - efficient purification even from specialized samples
- High-quality DNA - for sensitive downstream applications, including multiplex and quantitative PCR
- Optimized protocols - for a wide range of starting materials
- Formats for different throughput requirements - spin-column and 96-well high-throughput formats

▼ Show detailed information

DNeasy Blood & Tissue Kit Links
- Protocols/Handbook
- MSDS
- FAQ
- Journal References
- Certificates of Analysis

Ordering Information

Add to Cart?	Name	Details	Cat. No.	List Price	Your Price
■	[redacted]	[redacted], Proteinase K, [redacted]	[redacted]	[redacted]	[redacted]
☐	**DNeasy Blood & Tissue Kit (250)**	250 DNeasy Mini Spin Columns, Proteinase K, Buffers, Collection Tubes (2 ml)	69506	$525.00	N/A*
☐	**DNeasy 96 Blood & Tissue Kit (4)**	For 4 x 96 DNA minipreps: 4 DNeasy 96 Plates, Proteinase K, Buffers, S-Blocks, AirPore Tape Sheets, Collection Microtubes (1.2 ml), Elution Microtubes RS, Caps, 96-Well Plate Registers	69581	$911.00	N/A*
☐	**DNeasy 96 Blood & Tissue Kit (12)**	For 12 x 96 DNA minipreps: 12 DNeasy 96 Plates, Proteinase K, Buffers, S-Blocks, AirPore Tape Sheets, Collection Microtubes (1.2 ml), Elution Microtubes RS, Caps, 96-Well Plate Registers	69582	$2,544.00	N/A*
Customers who ordered the above product(s) also ordered:					
☐	QIAquick PCR Purification Kit (250)	For purification of PCR products, 100 bp to 10 kb . Contents: For purification of 250 PCR reactions: 250 QIAquick Spin Columns, Buffers, Collection Tubes (2 ml)	28106	$413.00	N/A*
☐	RNeasy Mini Kit (50)	For purification of up to 100 ug total RNA from animal cells or tissues, yeast, or bacteria. Contents: 50 RNeasy Mini Spin Columns, Collection Tubes (1.5 ml and 2 ml), RNase-free Reagents and Buffers	74104	$219.00	N/A*
☐	QIAquick Gel Extraction Kit (50)	For gel extraction or cleanup of DNA (70 bp to 10 kb) from enzymatic reactions. Contents: 50 QIAquick Spin Columns, Buffers, Collection Tubes (2 ml)	28704	$88.00	N/A*
☐	RNase A (17,500 U)	For RNase digestion during DNA preparation. Contents: 2.5 ml (100 mg/ml; 7000 units/ml, solution)	19101	$135.00	N/A*
☐	Buffer AL (216 ml)	Lysis buffer for DNA purification. Contents: 216 ml Lysis Buffer	19075	$69.00	N/A*

Add to Cart *Please login or register to see your specific pricing. More...

Contact more

QIAGEN in USA
Ordering: 800-426-8157
Technical: 800-DNA-PREP
(800-362-7737)

Ordering from QIAGEN Inc.

Satisfaction Guarantee

Our satisfaction guarantee means that purchasing from QIAGEN is risk-free. If you are not entirely satisfied with the performance of any product simply call our Technical Service Department. They can answer any questions and, if you are still not satisfied, arrange a prompt refund or exchange* (see Returns)

How to Order

Order Online:	http://www.qiagen.com/ordu
Order by E-mail:	customercare-us@qiagen.com
Order by Fax:	800-718-2056
Order by Mail:	27220 Turnberry Lane Suite 200 Valencia, CA 91355
Order by Phone:	800-426-8157

Office hours

Normal business hours are 6.00 a.m. - 5:00 p.m. (PST) weekdays.

Information for Ordering

There is no minimum order requirement. For faster service, please provide us with the following information:

- Customer account number (if you have one)
- Name of principal investigator
- Valid purchase order number
- Name and phone number of end user
- Billing address
- Shipping address
- Name and phone number of purchasing agent
- Catalog number and description of product
- Quantity

To confirm your telephone order in writing, mark your confirmation clearly with "Confirmation - Do Not Duplicate" and send or fax it to us at the toll-free number. If your institution orders regularly, written confirmation of telephone orders is generally unnecessary.

Charge Your QIAGEN Purchase

QIAGEN accepts U.S.-issued Visa, Mastercard, Discover Card, and American Express for shipment in the U.S. To charge your next order or to find out more about the QIAGEN credit card policy, call 800-426-8157.

Annual Purchase & Bulk Order Contracts

QIAGEN offers considerable savings to organizations purchasing QIAGEN products under an annual purchase contract. We also offer special quotations for any product required in bulk or large quantities. Please contact your local QIAGEN sales representative to inquire or obtain sales terms and conditions.

Prices & Terms

Payment terms for purchases are net 30 days in U.S. dollars. Prices are quoted in U.S. dollars and are subject to change without notice. All orders are subject to final acceptance by QIAGEN Inc. at the prices in effect at the time of shipment, and are based on QIAGEN Inc.'s sales terms and conditions.

Shipping and Delivery*

Orders received before 3 p.m. Pacific Standard Time Monday through Thursday will generally ship the same day. Orders received on Friday, Saturday and Sunday

Germantown, MD

shipping option for your order depending on your location and the shipping temperature and/or

Incomplete & Damaged Shipments

If a shipment is incomplete, please retain all shipping documents, containers, and packing materials, and notify our Customer Service Department at 800-426-8157 as soon as possible (no later than five business days after receipt).

If a shipment is damaged, accept the shipment and retain all shipping documents, cartons, and packing materials for inspection. Make a note on the waybill of any visible damage at the time of receipt. Report the damage to our Customer Service Department (800-426-8157) as soon as possible. Once a shipment of the product you ordered has been released to the carrier, you become the owner of the goods and are responsible for claiming any damage. Questions and requests for

assistance should be directed to our Customer Service Department (800-426-8157).

Returns*

Our satisfaction guarantee means that if you are not entirely satisfied with the performance of a QIAGEN product we will exchange or refund it. Simply call our Technical Service Department at 800-DNA-PREP (800-362-7737). They can answer any questions about the product. If you are still not satisfied, please ask for a Return Authorization (RA) Number (see below).

Products ordered, shipped, or billed in error can be returned for exchange or credit. Please contact our Customer Service Department at 800-426-8157 for a Return Authorization (RA) Number (see below).

Return Authorization (RA) Numbers

RA Numbers enable us to track your return and ensure appropriate credit to your account. To return goods, please be ready to provide us with the following information:

- Purchase order number
- QIAGEN order reference number
- Catalog number and description of product
- Reason for return

We can then issue an RA number and give you instructions on how best to get the products back to QIAGEN. Any feedback or suggestion regarding our return policy can be sent via e-mail, fax, or mail to QIAGEN Inc., Attention: the General Manager.

** Separate conditions apply to QIAGEN scientific instruments. Please inquire for more information.*

Product Use and Sales Conditions

Product Warranty and Satisfaction Guarantee*

QIAGEN guarantees the performance of all products in the manner described in our product literature. The purchaser must determine the suitability of the product for its particular use. Should any product fail to perform satisfactorily due to any reason other than misuse, QIAGEN will replace it free of charge or refund the purchase price. We reserve the right to change, alter, or modify any product to enhance its performance and design. If a QIAGEN product does not meet your expectations, return it to us. We will credit your account or exchange the product as you wish.

THE GUARANTEE STATED ABOVE IS IN LIEU OF ANY OTHER WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED, ARISING BY LAW OR OTHERWISE. QIAGEN MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. UNDER NO CIRCUMSTANCE SHALL QIAGEN BE LIABLE FOR ANY DIRECT INCIDENTAL, SPECIAL, OR CONSEQUENTIAL LOSS, DAMAGE, OR EXPENSE DIRECTLY OR INDIRECTLY ARISING FROM THE USE OF THE PRODUCT, EVEN IF QIAGEN KNEW OF THE POSSIBILITY OF SUCH LOSS, DAMAGE, OR EXPENSE. All terms and conditions are subject to change without prior notice. For more information about the terms and conditions of sale, please review our invoices. If you have questions about product specifications or performance, call our Technical Service Department at 800-DNA-PREP (800-362-7737).

Product Use Limitations

Some QIAGEN products may be used in clinical diagnostic laboratory systems after the laboratory has validated their complete systems as required by CLIA '88 regulations in the U.S. or equivalents in other countries. All due care and attention should be exercised in the handling of the products. We recommend all users of QIAGEN products to adhere to the NIH guidelines that have been developed for recombinant DNA experiments, or to other applicable guidelines.

** All QIAGEN scientific instruments are backed by individual warranties. Please inquire for more informati on.*

[Sales Terms and Conditions]

RELATED INFORMATION

- FAQs for Phusion™ High-Fidelity PCR Master Mix with HF Buffer
- FAQs for Polymerases
- Technical Reference for Polymerases

FAVORITE TOOLS

- Enzyme Finder
- NEBcutter
- NEBuffer Chart
- Double Digest Finder
- Isoschizomers
- DNA Sequences and Maps
- REBASE

RELATED PRODUCTS

Compatible Products

- Phusion™ HF Buffer Pack
- Phusion™ High-Fidelity DNA Polymerase

SPECIAL OFFERS

Phusion™ High-Fidelity PCR Master Mix with HF Buffer

Developed & Manufactured By Finnzymes Oy. Distributed by New England Biolabs, Inc.

Catalog #	Size	Concentration	Price	Qty	
F-531L	500 reactions (50 µl volume)		$650.00	1	ADD TO CART

Prices are in US dollars and valid only for US orders.

Download: Manual | MSDS PDF

- Licensed for PCR*
- Highest fidelity of any commercial thermostable polymerase (50 X greater than *Taq*)
- Industry leading processivity is 10 X higher than *Pfu* and 2 X higher than *Taq*
- Unrivalled robustness and yield
- Convenient 2X mix - add only template and primers

Description:
Phusion™ High-Fidelity PCR Master Mix is a convenient 2X mix containing Phusion High-Fidelity DNA Polymerase, nucleotides and optimized reaction buffer including $MgCl_2$. Only template and primers need to be added by the user.

Choosing the right master mix:

The error rate of Phusion DNA Polymerase in HF Buffer (4.4×10^{-7}) is lower than that in GC Buffer (9.5×10^{-7}). Therefore, the master mix with HF Buffer should be used as a default for high fidelity amplification. However, GC Buffer can improve the performance of Phusion DNA Polymerase on some difficult or long templates, i.e. GC rich templates or those with complex secondary structures. Use of the Phusion High-Fidelity PCR Master Mix with GC Buffer is recommended for those instances where amplification with HF Buffer has failed.

Reagents Supplied:
DMSO (100 %)

Reaction & Storage Conditions

Reaction Conditions:
Phusion High-Fidelity PCR Master Mix with HF Buffer
Phusion High-Fidelity PCR Master Mix with HF Buffer:
0.2 mM dNTPs
1 M Phusion HF Buffer
1 M Phusion High-Fidelity DNA Polymerase

Storage Temperature:
-20°C

Notes

General notes:

1. The Phusion HF Buffer supplies 1.5 mM $MgCl_2$ in a final concentration.
2. Stable for six months from the packaging date. After thawing the mix can be refrozen or optionally stored at 4°C for three months.

FAQs

1. Are the DNA fragments produced by Phusion™ High-Fidelity DNA Polymerase/Phusion™ High-Fidelity PCR Master Mix blunt-ended or do they have the single-base 3´ overhang that Taq DNA Polymerase yields?
2. What is the error rate of Phusion™ High-Fidelity DNA Polymerase?
3. What are the advantages to using Phusion™ High-Fidelity PCR Master Mixes?
4. I am having trouble amplifying a template that is longer than 5kb. How can I optimize my product yield using Phusion™ High-Fidelity PCR Master Mix?
5. I am having trouble amplifying a template that is longer than 5kb. How can I optimize my product yield using Phusion™ High-Fidelity PCR Master Mix?
6. Why are there high molecular weight smears or DNA in the wells of an agarose gel after a PCR using Phusion™ High-Fidelity DNA Polymerase?
7. Why are there low molecular weight discrete bands on an agarose gel after a PCR using Phusion™ High-Fidelity PCR Master Mix?
8. Does Phusion High-Fidelity DNA Polymerase exhibit a strand displacement activity?
9. What should my primer concentration be when using Phusion™ High-Fidelity DNA Polymerase/Phusion™ High-Fidelity PCR Master Mix?
10. Will Phusion™ High-Fidelity DNA Polymerase incorporate dUTPs?
11. I'd like to clone a fragment amplified with Phusion™ High-Fidelity DNA Polymerase/Phusion™ High-Fidelity PCR Master Mix. Do I have to blunt end clone?
12. Are Finnzymes' DNA Polymerases licensed for PCR?

Companion Products

Phusion™ HF Buffer Pack
Phusion™ High-Fidelity DNA Polymerase

Legal

Licenses/Patents/Disclaimers:

*** PCR license notice:** These products are sold under licensing arrangements of Finnzymes Oy with F. Hoffman-La Roche LTD, Roche Molecular Systems, Inc. and Applied Biosystems. The purchase of these products is accompanied by a limited license to use them in the Polymerase Chain Reaction (PCR) process in conjunction with a thermal cycler whose use in the automated performance of the PCR process is covered by the up-front fee, either by payment to Applied Biosystems or as purchased, i.e. an authorized thermal cycler.

Notice to purchaser: Limited license.

The purchase price of this product includes a limited, non-transferable license under U.S. and foreign patents owned by New England Biolabs, Inc., to use this product. No other license under these patents is conveyed expressly or by implication to the purchaser by the purchase of this product.

Packaging and Shipping Policy

New England Biolabs ships its products in plastic foam (polystyrene) containers with gel ice packs and recommends that its distributors do the same. Gel ice packs are kept at -20°C for at least 72 hours prior to shipment and the polystyrene boxes are tightly sealed. Tests have shown that products shipped under these conditions will stay at or below 4°C for more than 24 hours even if ice pack is not frozen upon receipt. Testing at NEB has shown that there is no difference in activity and stability between enzymes that are shipped with gel ice packs and enzymes shipped on dry ice.

While New England Biolabs recommends storage of its enzymes at -20°C, exposure to higher temperatures (4 to 10°C) during shipping does not pose any risk to the enzymes. In fact, during the purification process (up to 3 weeks) enzymes are maintained at these temperatures as they are purified away from proteases and other contaminants which might interfere with their stability. Furthermore, each enzyme is shipped in a specific storage buffer which has been optimized for long-term stability.

NEB enzymes are stored in buffered 50% glycerol and remain liquid at temperatures down to -35°C. If these enzymes are shipped at colder temperatures (for example, in the presence of dry ice) the products will freeze. Proteins subjected to repeated freeze/thaw cycles may lose activity.

We have used these shipping conditions for the 25+ years that we have been providing DNA restriction and modifying enzymes and related products to the scientific community. If this shipping procedure posed any risk to our products, we would change the procedure immediately.

Shipping Rates

New England Biolabs charges $16.00 per order for shipping and handling. We offer free shipping for online orders of over $100.00 and phone or fax orders of over $250.00.

Sincerely,
The Staff at NEB

New England Biolabs, Inc. is an ISO 9001 Certified Company.

University of Washington Department of Biochemistry

DNA Sequencing Facility

Welcome to the Biochemistry DNA Sequencing Facility's (BDSF) online sample submission, sample tracking and data retrieval system at the University of Washington.

Log in to the BDSF

Create a new account

Forgot your password?

Try the Demo

Help

01/31/2007:
Price change (effective 02/01/07 to 12/31/07):
Analysis only: $2.03/sample
Reaction + analysis: $6.02/sample

10/04/2004:
We have phased out BigDye version 1.1.
If you must use this version, we can only accept orders containing 96 samples (a full plate).

Contact Us

Note: Please make sure that JavaScript is enabled in your browser preferences. If it is not enabled this web site will not function as intended.

Title: *WHAT YOU GOT? Festival WORKSHOPS*
Submitted by: Brendan Phillips

NARRATIVE:

WHAT YOU GOT? is a weekend-long youth arts festival meant to highlight and empower youth arts and culture in our region. WHAT YOU GOT? will consist of films, bands, visuals arts, and spoken word, from communities as far away as Spokane and Vancouver, B.C. Over the four days of this festival, youth will be able to network and build cross-community relationships and participate in a number of educational workshops aimed at building skill and empowering youth voice. WHAT YOU GOT? will take place at venues throughout downtown Olympia including Sylvester Park and The Capitol Theater making it a truly community-wide event.

With your assistance, I want to strengthen the educational component of the festival with well-organized workshops that will be held everyday from 2-5pm at the Olympia Free School, Art House Designs, and Sylvester Park. These workshops will be geared toward building skills among youth participants and increasing their knowledge of community-based learning opportunities offered through local youth advocacy organizations. When possible, workshops will be facilitated by youth facilitators exposing workshop participants to the power of peer-to-peer learning.

Working with the Free School I have completed the tasks of securing facilitators and venues. A working budget has been developed that will ensure access to youth wishing to take part in these workshops. The workshop content is a result of meetings with youth themselves as well as youth service organizations such as YAYA media, Stonewall Youth, Community Youth Services (CYS) and Partners in Prevention Education (PIPE). The workshops are as follows:

- Environmental knowledge and Action facilitated by Author and activist Derek Jensen.
- DIY silk screening facilitated by a local youth and t-shirt design company owner, Jason Donnette
- Short Films and editing facilitated by YAYA media's own Jessica Eskelson
- Body-positive DIY zine making facilitated by Last Word books zine library
- Gender and youth issues hosted by Stonewall youth
- Cupcakes against domestic violence and PIPE will facilitate a youth domestic violence information session and a cupcake bake-off.
- Spokane's Havermail Alternative high school will send over the Medicine Wheel Academy comprised of Native youth who will host a native beading and drum workshop.
- Street art and mural design facilitated by fellow Evergreen Student and classmate Julian Genette.

For the past two years I have worked to strengthen my understanding of community-based organizing. Through my work for the Center for Community Based Learning and Action I have organized a number of small campus-based events the brought community organizations to campus for the purpose of increasing student involvement in Olympia's wide array of social organizations. This project has led me to work directly with many

different organizations including YAYA media, Stonewall Youth, Community Youth Services, Bread and Roses, Partners in Prevention Education, and Rosie's Place Street Outreach. The project has required me to coordinate inter-agency meetings, communicate and negotiate directly with workshop facilitators, and develop a number of brochures and informational pamphlets aimed at increasing youth input on what workshops and learning opportunities they would like to see during the festival. The process of working with young people to create a complex and empowering format for expression has been my greatest challenge. My partnership with Community Youth Services and Rosie's Place has given me the opportunity to sit, discuss, and plan workshops with local youth and offer them the chance to play a positive and proactive role in developing the workshop program.

Working with youth has been a passion of mine for the better part of a decade. As a young person I experienced difficulties integrating into public education. I also struggled with developing a platform for expression something I now realize is part of a community's responsibility to the younger generation. I hope to become a teacher and am planning to enroll in Evergreen's MIT program. Organizing these workshops and interfacing with local youth has helped me to understand problems faced by at-risk youth that diminish their success in traditional public education. Understanding these problems has led me to research and gain insight into alternative education methods. Through my partnerships I hope to continue working with youth in this community allowing me to complete some of the application criteria for admittance into Evergreens MIT program.

My work directly interfacing with local youth links this project to many of Evergreen's core learning values. The most readily apparent is learning across significant differences. The focus of these workshops, and this event overall, has been to bring people together to celebrate youth culture. Youth culture is made up of many different groups and often separated by race, sexual orientation, and economic backgrounds. I have worked hard to help foster relationships between youth advocacy organizations by bringing them all in to plan these events. I have also worked with youth from a variety of backgrounds, bringing them together to work across traditional barriers on developing and promoting these workshops. In addition, I have worked with fellow students of varying background and skill sets to increase my ability to complete this project.

WHAT YOU GOT? provides a platform for youth expression and networking. The festival plans to become an annual event on par with Art Walk and Procession of the Species. Not only will the festival show the community-at-large the diverse and vibrant nature of youth culture in the region, it will provide an opportunity for youth themselves to interface across traditional barriers, while honing existing skills and learning new ones in a safe and inclusive environment.

Evergreens support for these workshops will reinforce it's commitment to learning and the community. I believe that the workshops will have lasting and positive effects on area youth. The program Community Action and Community Design will be my final quarter as an undergraduate at Evergreen. This project is a result of 2 quarters of planning and 1 quarter of action and implementation.

BUDGET:

Facilitator costs and expenses:	
Derek Jensen travel expenses (round-trip Portland to Olympia) and facilitator fee.	300.00
Havermail/Medicine Wheel Academy travel expenses (round-trip Spokane-Olympia)	175.00
Workshop material supplies:	
DV tapes for YAYA media workshop	25.00
Beading supplies	45.00
Silk screening workshop supplies: (2 silk screens @ $50, colored inks @ $35, and $15 for stencil materials)	100.00
Paper and writing supplies for zine workshop	50.00
Baking supplies for PIPE workshop	50.00
Paint and supplies for street art workshop ($50 for paint, $25 for brushes, $25 stencil materials)	100.00
Venue Rental costs	
Art House Designs	155.00
TOTAL REQUEST	**$1000.00**

Title: *Silk Roads Anthology*
Submitted by: Kelsey Sheets, Lindy Cameron, and Corine Martin

In the fall of 2006 The Evergreen State College's Silk Roads class embarked on an odyssey, an examination of identity through the lenses of history, religion, the arts, travel, commerce and technology of the countries and cultures traversed by the Silk Roads. We learned that the Silk Roads carried much more than cloth and trade goods, it carried lives and ideas, and we were joined on the journey by faculty and students from other Evergreen programs, both full-time and Evening/Weekend, and from guest speakers from across the country and around the world.

Through the creation and publication of the Silk Roads Anthology, we seek to share the writing, art, photography of our vast learning community with the Olympia community. During fall, winter, and into the spring quarter; Silk Roads students have been collecting, producing and editing art, poetry, essays, and travel narratives from two Evergreen forums (one on identity from week three of winter quarter, the other on gender, identity and self-cultivation from Asian faith traditions from week nine of winter quarter).

The anthology will have two main sections: one on identity through various lenses of gender, nationality, ethnicity, religion, class, history, etc.; the other on the journeys of Silk Roads students and faculty to China, Turkey, Jordan and the Pacific Northwest. The goal of the publication is to connect our community with the Silk Roads, and thereby nurturing and encouraging readers of the anthology to explore their place in the world.

Work on the anthology began in earnest toward the end of winter quarter. Silk Roads students and faculty organized themselves into an editorial production team and established a production schedule. The end goal is to have print copies of the publication available at the Silk Roads international festival at the end of spring quarter, as well as at Super Saturday and at various local businesses and organizations. A Web version will also be available by the end of spring quarter 2007.

In embarking on this project, Silk Roads students and faculty have worked diligently to include as many voices as possible. As part of our Silk Roads community service requirement, Silk Roads students have placed calligraphy brushes in the hands of elementary students and seniors, have presented workshops for the homeless at Bread and Roses, and written and illustrated children's books on program themes that were presented at local K-12 schools. In preparation for designing the anthology, students

designed programs and posters for Silk Roads-sponsored community events, such as the Spring Lunar New Year Festival at Evergreen and SPSCC. Collaborating on these projects laid the groundwork for even closer collaborative work on the anthology, where we are drawing together the threads of our contributors with guidance of Silk Roads faculty.

This anthology is our program's contemporary contribution and lasting legacy to the Silk Roads. It is our effort to promote peace through understanding. It has instilled a drive to make and facilitate connections among cultures and people. It will bring together the writing and art of U.S. students, Islamic feminists, Chinese Tai 'Ji masters, mothers, teachers, elders – people often separated by their differences. In bringing these people together during forums, workshops and travels, we have all benefited. The products of our time spent learning together will be the soul of this anthology.

This project, as a piece of the Silk Roads curriculum has the potential to create new avenues of understanding for readers and participants. If we are successful in conveying some of what we have come to understand in the course of this program, it is our hope that this will be the beginning of a tradition. Silk Roads students in the future will have the opportunity to build and grow this publication into an annual project. Each year, the Silk Roads curriculum at Evergreen will reach deeper into the surrounding community carrying with it the creativity, ideas, beliefs and understandings of those that came before – creating peace through understanding.

Our budget proposal illustrates our financial needs for this publication. The lowest estimate we received was from Capitol City Press in Tumwater. They will assemble all pages including the covers, after they have printed them and cut them to size. That is why the 3 of us would each like to request the grant limit per student. The scope of our project is large and we know that it will continue to benefit our community for years to come.

Budget	Explanation	Amount
Printing of Publication (Prices obtained from Capital City Press)	All Labor and Materials	$2635 (Includes 8.4% sales Tax

Capitol City PRESS
2975 37TH AVE SW
TUMWATER, WA 98512
360-943-3556 PH
360-943-2140 FAX
www.capitolcitypress.com

Estimate

No. E#17985

Date 4/10/07

KELSEY SHEETS

Customer P.O. No.

Phone: 360.265.0920
E-mail: KELSEY21_7@MSN.COM

QUANTITY	DESCRIPTION	AMOUNT
500	BOOKLET: 20 PAGE PLUS COVER, SADDLE-STITCHED (24 pages) COVER, 5.5 x 8.5 WHITE 80# TITAN GLOSS COVER, printed 4 colors front in 4C PROCESS ink 4 colors back in 4C PROCESS ink 16 INSIDE PAGES, 5.5 x 8.5 WHITE 80# TITAN GLOSS BOOK, printed 4 colors front in 4C PROCESS ink 4 colors back in 4C PROCESS ink 4 INSIDE PAGES, 5.5 x 8.5 WHITE 80# TITAN GLOSS BOOK, printed 4 colors front in 4C PROCESS ink 4 colors back in 4C PROCESS ink	2,431.00
1,000	BOOKLET: 20 PAGE PLUS COVER, SADDLE-STITCHED (24 pages) COVER, 5.5 x 8.5 WHITE 80# TITAN GLOSS COVER, printed 4 colors front in 4C PROCESS ink 4 colors back in 4C PROCESS ink 16 INSIDE PAGES, 5.5 x 8.5 WHITE 80# TITAN GLOSS BOOK, printed 4 colors front in 4C PROCESS ink 4 colors back in 4C PROCESS ink 4 INSIDE PAGES, 5.5 x 8.5 WHITE 80# TITAN GLOSS BOOK, printed 4 colors front in 4C PROCESS ink 4 colors back in 4C PROCESS ink	2,601.00

BOOKLET

Sales Rep: SHERRI
Taken by: DL

Quote does NOT include 8.4% WA State Sales Tax

This estimate is good for 30 days.

Collins, Dorothea

From: Lindy Cameron Schroeder [lindyschroeder@gmail.com]
Sent: Friday, April 13, 2007 1:53 PM
To: Foundation Activity Grants
Cc: Diamant, Hirsh; Simons, Char; Kelsey Sheets; Martin, Corine; Lindy Cameron
Subject: Silk Roads Spring Activity Grant Application
Attachments: Grant Application Cover Page.doc; Final Grant Proposal_Silk Roads.doc; Budget_Print Bid.pdf

Attached is the Silk Roads Class Anthology team's application for the Spring quarter, 2007, Student Activities Grant. Thank you for your time and consideration!

--
The Silk Roads Anthology Staff