Words That Unite:
An analysis of Kenyan nationalism through political speeches

SLU Fellows Proposal

Summer 2014
Abstract

“Let us reject violence and selfishness which could destroy our country’s unity.”
- President Mwai Kibaki

Without a unifying national identity it is near impossible for country to have peace and security within its borders. Nationalism is what emotionally attaches an individual with his or her neighbor despite any socioeconomic, ethnic, or linguistic divides that may exist between them. In the words of renowned political scientist Benedict Anderson, nationalism is the ability to think beyond one’s immediate community to an imagined community. Political rhetoric is one of the primary modes of creating this imagined community. Political speeches are heard all over a country, by citizens who will never meet, yet through discourse leaders attempt to establish a sense of unity. Nevertheless, countries all around the globe experience social unrest and violence between ethnic and socioeconomic groups despite the fact that these same individuals share their country with one another. Kenya has been independent since 1963, yet continues to struggle with political and social tension amongst ethnic lines. Scholars and the media have paid close attention to the political and social situation in Kenya throughout recent decades. However, the rhetoric of Kenyan presidents is an area that has yet to have the analysis it deserves. Through political rhetoric one can decipher what Kenyan leaders believe will unite their nation, and how Kenyans have responded to the words of their leaders. Kenya is a nation that continues to be divided in so many ways, yet the possibility of a strong Kenyan identity seems possible. Therefore, I propose to spend this summer analyzing the rhetorical strategies used in the speeches of Kenya’s presidents, and forming my own theories as to how leaders have attempted to create a unifying Kenyan identity that will be strong enough to dissolve all social divides and bring permanent peace to Kenya.

I. Introduction

The purpose of my proposed project is to apply my developing knowledge of government and linguistic anthropology to analyze Kenyan presidential speeches. I will examine a collection of speeches from Kenya’s four presidents to determine how rhetoric and political performance create the image of a single national identity in a nation that is divided along socioeconomic, ethnic, and linguistic lines. I will organize my analysis into a paper, which I will submit to the Journal of Undergraduate Anthropology, and The Underground, St. Lawrence University’s journal of undergraduate research on representation discourse.

Broadly defined, a nation is a large collective of people united by a common decent, history, culture, or language inhabiting a territory. Whichever combination of these connections ties a population together the ideal result is a strong emotional bond that enables citizens to imagine themselves as members of a community. Congruity of decent, history, culture, and language is not, however, a reality in most modern

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states, especially former African colonies where the idea of homogeneity seems impossible to express. Nevertheless, politicians attempt to do it every day.³

Kenya is home to an estimated 70 distinct ethnic groups and 69 languages.⁴ Since gaining independence in 1964, Kenyan presidents have toiled rhetorically to create a national identity that dissolves ethnic differences. Rhetoric is the primary resource politicians have to convey an imagined community of homogeneity to their nation; thus, rhetoric is a valuable resource for evaluating the evolving state of a nation’s unity. It is through rhetoric that democratic politicians attempt to deviate from violence, and create a single cultural reality.

I will analyze the distinct rhetorical strategies used by Kenyan presidents to create the Kenyan national identity. I will examine presidential candidates’ speeches from Kenya’s four presidential elections in order to decipher how national identities are constructed through rhetoric, and whether or not rhetorical strategies used by presidents have changed over the course of Kenya’s democracy. This analysis is timely given to Kenya’s recent political and social struggles. By examining the political rhetoric of Kenya from the past and present I hope to answer the broader question of what Kenyans need to feel a sense of security within their borders, and a sense of camaraderie with their fellow citizen that disregards socioeconomic, ethnic, and linguistic divides.

II. Theoretical underpinnings

For this project I will analyze presidential speeches from Kenya’s four presidents in order to decipher how an overarching national identity is rhetorically constructed in a society divided by socioeconomic, linguistic, and ethnic lines, and whether or not rhetorical strategies have changed over the course of Kenya’s democracy. I will refer to anthropological research done on performance and politics in Africa, as well as ethnicity and nationalism. This research will assist me in creating my own theories of how rhetorical performance is used to create national identities. Among the scholars whose work I will

³ Askew, Performing the Nation, 9-10.
draw on are Kelly M. Askew, Benedict Anderson, Thomas Hylland Eriksen, Michael Warner, and Naima Boussofara-Omar.

Askew, Anderson, and Eriksen contribute to a school of thought that I will refer to as the nation building school of thought. These scholars argue that rhetorical devices are influential in creating a unified nation, and have the ability to dissolve social divides, even if only for the duration of a speech. Their scholarship will assist me in interpreting why presidents choose a particular rhetorical device in a specific speech, and why the uses of certain rhetorical styles have or have not changed over time. This school of thought will also provide me with a basis on which I can make arguments about the importance of performance for displaying political power, and unifying a highly divided nation.

Boussofara-Omar’s scholarship on the formulation of the presidential voice provides me with research on the rhetorical styles of leadership. Boussofara-Omar argues that linkages exist between linguistic practices and the political and economic activity of the public. Warner’s scholarship discusses who makes up the public, or the audience, to which politicians speak as well as the characteristics of the public that alter the contents of the performance. This research enhances my understanding of how presidential speeches are formed based on the presumed audience.

My research will build on the work of these scholars by joining together theories of how political identities are created and types of political performance. There has been a great deal of research completed on the types of language used in Kenyan presidential speeches, whether English or Kiswahili, and the implications of language choice. Scholars have also focused significantly on the political and ethnic divides in Kenya, especially in recent elections. How politicians communicate with their nation is just as significant as the events that transpire as a result of political action. Focusing research solely on what Kenyan politicians are communicating to constituents will add an important element to this existing scholarship.

III. Detailed Explanation of Topic

Kenya is composed of over 70 ethnic groups brought together under a single national government. Under these circumstances, it seems impossible to imagine a homogenous national identity
that cuts across all social divides. However, that is exactly what Kenyan politicians have attempted to rhetorically construct. Against this framework, my project asks how presidential speeches in Kenya form an image of Kenya as a united nation despite economic, ethnic, and linguistic divides. Over time, have Kenyan presidents used different speech acts and rhetorical styles to form a national identity?

My hypothesis is that Kenyan politicians use an array of rhetorical devices that not only imagine a unified Kenya, but also convey their idea of an ideal social organization of the nation. For instance, metaphors of kinship are popular rhetorical devices in Kenyan political speeches. Kinship metaphors provide a framework for conveying sameness, but also for ranking as well. By referring to constituents as ‘brothers’ and ‘sisters’ leaders dissolve ethnic and economic differences between them and their constituents, and among constituents as well. Moreover, kinship metaphors give the speaker the ability to express status. A fellow politician may be referred to as a brother, while a leader from the past may referred to as a father. This kinship metaphor creates another bond for constituents by suggesting that they are all children of a common history, which affected them all equally.

Though kinship metaphors offer initial insight into how politicians rhetorically create fictive relationships with their constituents, I am also curious of speech acts beyond these metaphors that have been used by Kenyan presidents to dissolve complex social differences, and pacify deeply rooted social and ethnic conflicts. Some of the other linguistic techniques I will be analyzing in these speeches are increased code structuring and gestures of performance, the variety of metaphors, and types of speech acts. Through these rhetorical techniques I hope to determine how politicians are attempting to create a lasting Kenyan national identity that is relatable to all citizens.

IV. Research design and methodology

To answer my research questions I will analyze the rhetoric of Kenya’s four presidents and determine what rhetorical strategies and speech acts are used to create the Kenyan identity. In order to avoid subjectivity, I will be selecting the speeches based on length rather than subject matter to avoid making judgments based on the particular event for which a speech was given. For those speeches that have been recorded, I will also observe the audience’s reactions and participation during the speeches.
After collecting data, I will make comparisons across the collection of speeches to determine whether these rhetorical strategies have changed over time, and if these changes are related to social or economic changes in Kenyan history. I will exercise my developing knowledge of linguistic anthropology, and nationalism to form my own theories on the creation of national identity in Kenya.

My project mentor is Dr. Adam Harr, a linguistic anthropology professor. Dr. Harr has done research regarding political rhetoric in Indonesia during democratization, and his expertise will be crucial to my project. Dr. Harr will be able to advise me on techniques and frameworks for analyzing the speeches and assist me in devising my own interpretations with regards to the rhetorical creation of a Kenyan national identity.

Over the course of my fellowship I will accomplish the following objectives. I will first collect a variety of speeches given by Kenyan presidents from 1963 through the present. I will be sure to include a variety of recordings, videos, and transcripts of speeches, which will help me to analyze rhetorical strategies, performance, and audience participation and reactions. Once my data has been collected I will compare the speeches against the timeline of Kenyan history, and amongst one another to determine any patterns or changes influenced by historical events or conflicts. I will also organize a reliable database of Kenyan political speeches that will be available online for further academic research. As I go through this experience I will be forming my own theories of how Kenyan leaders have attempted to create a unified Kenyan identity that dissolves socioeconomic, ethnic, and linguistic divides by means of rhetorical techniques. Once this process has been completed I will be able to begin writing a paper, which I will later submit to The Underground, and the Journal of Undergraduate Anthropology.

The only limitation that I can see disrupting my research would be unreliable access to certain speeches. For instance, it is easier to find speeches given nationally by presidents, but I will also like to have access to speeches given to smaller communities as well. Furthermore, it takes a substantial amount of research to find Kenyan presidential speeches both in print and online due to the fact that the Kenyan government does not have a reliable online archive. Though this will be an obstacle in my own research,
I hope that by creating a reliable online database myself I will be able to assist other researchers with finding Kenyan political speeches.

V. Conclusion

I have been passionate about anthropology, African Studies, and government since my freshman year at St. Lawrence. It has been a goal of mine to connect my education in government with anthropology, and to study the connection between politics and culture. Therefore, completing this project will be a great benefit to my academic career because it combines every subject I have continued to enjoy learning about for the past three years. Furthermore, I plan to study in Kenya during the fall semester of 2014, and I believe this project will be the perfect way to leave St. Lawrence and finally immerse myself in Kenyan culture. In the future, I hope to pursue a career that will allow me to continue learning about and using my knowledge of African culture and government. I would like to pursue a career in the United States State Department either with an east African embassy, or the United States Agency for International Development. Completing this project will demonstrate that I have the ability to study Africa through an anthropological and political lens, and connect these two disciplines in a way that provides a greater understanding of African politics and its relationship with culture.

I chose to attend St. Lawrence because the University’s four field anthropology department and its dedication to African studies. Because of St. Lawrence, I have been fortunate to connect my interests in anthropology, African studies, and government throughout my college career. I hope to exhibit the well-rounded African studies education I have received at St. Lawrence, and excite others about St. Lawrence’s African studies program as well by submitting my research paper to the Journal of Undergraduate Anthropology as well as to St. Lawrence’s own journal, The Underground. Through my research I hope to celebrate and exhibit St. Lawrence’s dedication to African studies, the Kenya-St. Lawrence connection, and anthropology.

Apart from St. Lawrence, I believe this project will benefit the broader anthropology and African studies communities because it will contribute another lens through which Kenyan politics can be analyzed. Presidential rhetoric is an area that has not had enough academic attention throughout Kenya’s
efforts to form a united democracy. Political rhetoric is the art of persuasion, and a set of methods politicians use to identify with their constituents, and is therefore especially important for determining the state of a nation’s sense of unity. Therefore, by organizing a database of Kenyan political speeches, and adding my research to the already existing body of work on Kenyan politics we can develop a better understanding of how Kenyan citizens relate to one another, and what elements of nationalism may be missing in Kenyan society that contribute to continued ethnic and political tensions.
Appendix A. Selected Bibliography

My research this summer will include the following scholarly sources and collection of speeches, which will grow as my research continues.


## Appendix B. Timeline

<table>
<thead>
<tr>
<th>Activity</th>
<th>Number of hours</th>
<th>Week number</th>
<th>Expected outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizing a collection of speeches from Kenya’s four presidents</td>
<td>As much time as necessary to gather a suitable variety of speeches</td>
<td>Apr/May prep, 1</td>
<td>A variety of speeches in different formats for analysis</td>
</tr>
<tr>
<td>Transcribing speeches</td>
<td>As much time as necessary to transcribe video and audio recordings</td>
<td>2</td>
<td>To have transcripts of all the speeches I will analyze</td>
</tr>
<tr>
<td>Analyzing speeches</td>
<td>As much time as necessary to have a substantial amount of data for each president</td>
<td>2-3</td>
<td>A collection of data for each president</td>
</tr>
<tr>
<td>Connecting speeches to key social and political events in Kenyan history</td>
<td>1-2 days of research</td>
<td>3-4</td>
<td>Deciphering linguistic patterns in relation to Kenyan history</td>
</tr>
<tr>
<td>Formulizing theories of the rhetorical creation Kenyan national identity and determining patterns through time</td>
<td>As much time as necessary</td>
<td>4-5</td>
<td>The conception of my own theories of Kenyan political rhetoric</td>
</tr>
<tr>
<td>Organizing an online database of Kenyan political speeches</td>
<td>As much time as necessary</td>
<td>6</td>
<td>A reliable online database of Kenyan political speeches available for academic research</td>
</tr>
<tr>
<td>Organization of my research for a final research paper</td>
<td>6-7 hours a day</td>
<td>6</td>
<td>Preparation of my data and results for my research paper as well as determining appropriate scholarly sources to include</td>
</tr>
<tr>
<td>Organizing my research paper outline and determining structure of paper</td>
<td>6-7 hours a day</td>
<td>6-7</td>
<td>A clear outline of my paper that organizes my own research as well as that of other scholars that have contributed to my hypothesis</td>
</tr>
<tr>
<td>Writing a first draft of my research paper</td>
<td>6-7 hours a day</td>
<td>7-8</td>
<td>A working draft of my research paper that is ready for revision</td>
</tr>
<tr>
<td>Revising my research paper</td>
<td>6-7 hours a day</td>
<td>8</td>
<td>Subsequent revisions of my first draft to ensure my evidence for the results of my research is substantial and can be understood by an</td>
</tr>
</tbody>
</table>
Writing my final paper and preparing for submission to academic journals | 6-7 hours a day | 8-9 | A final research paper that adheres to the qualifications of the undergraduate academic journals I will submit my paper to

### Appendix C. Level of Preparation/Experience

<table>
<thead>
<tr>
<th>Skills and knowledge needed for research</th>
<th>Relevant courses</th>
<th>Grade received</th>
<th>Other experience</th>
</tr>
</thead>
</table>
| Knowledge in cultural and linguistic anthropology | • Cultural Anthropology  
• Language and Human Experience | | |
| Familiarly with political rhetoric | • Talking Politics | | |
| Basic knowledge of Kiswahili | • Elementary Kiswahili  
• Intermediate Kiswahili | | |
| Familiarity with African/Kenyan culture | • Peoples and Cultures of Africa  
• Environmental Perceptions and Indigenous Knowledge  
• FYS: African Life After Work  
• Popular Culture in Africa | | |
| Knowledge of past Kenyan political conflicts | • Conflict in Africa | | |
| Knowledge of politics in Africa | • African Politics  
• Intro to International Relations  
• Political Institutions in the Developing World | | |
| Research skills and writing competency | • China’s Rise (GOV 290 research seminar)  
• FYP  
• FYS | | |
Works Cited


Abstract

Judge with what sweet surprises Nature spoke
To each apart, lifting her lovely shows
To spiritual lessons pointed home,
And as through dreams in watches of the night, So through all creatures
in their form and ways Some mystic hint accosts the vigilant,
Not clearly voiced, but waking a new sense
Inviting to new knowledge, one with old.

- Ralph Waldo Emerson, The Adirondacks

In the essay “On Becoming a Poet,” Mark Strand states, “A poem may be the residue of an inner urgency, one through which the self-wishes to register itself, write itself into being, and, finally, to charm another self, the reader, into belief” (Strand xxiv). One of the most important parts of the identity of the inner self is that of place. Poets have been analyzing the effects “place” have had on them since the beginning of poetry. A place can be reborn, shared, and believed through poetry. As exemplified through the selected stanzas from Ralph Waldo Emerson’s poem “The Adirondacks,” the mountainous region that is home to St Lawrence University is one of those distinctly unique places that inspires natives and visitors alike to feel the need to share it. Because of this, there is a diverse collection of poems that have been written about the Adirondacks and their effect on those that have been here, some of which are included in the Owen D. Young Library Special Collections. These poems should be celebrated and displayed by those of us who are proud to call the Adirondacks home. I propose to spend this summer in the Adirondacks, surveying and selecting poetry of the Adirondacks to be displayed in an exhibit in Owen D Young library.

Introduction

The purpose of my proposed project is to utilize my developing poetic knowledge primarily to survey, select, and display Adirondack poetry. I plan to display those poems that I find pay impassioned homage to the Adirondacks in an exhibit in the Special Collections of
ODY. In addition to a compilation of poetry, I plan to respond to the poetry I read through the writing of my own Adirondack inspired poems, one or two of which will be included in the Special Collections exhibit I compile.

This project is worthwhile because the Adirondacks are our home. The St. Lawrence way of life is heavily influenced by our close proximity to the Adirondack park, yet there are still many Laurentians who call the Adirondacks “home” and do not truly understand the influence it has on us as a community. I want to explore the intense effect the Adirondacks have had on poets in particular in hopes to share this knowledge with the rest of the St Lawrence community. I also want to share with the communities of SLU, Canton, and the surrounding areas, the literary mecca that is ODY Special Collections. It is only because of my first year seminar research on John Henry Rushton and his influence on Canton that I have any experience in Special Collections. I want to organize an exhibit that could possibly bring more people to Special Collections. ODY Special Collections is also currently working on re-cataloging their Adirondack collection, and by cataloging Adirondack poetry, I would be expediting this process.

**Theoretical Underpinnings**

The most relevant literary skill to my project is that of poetic criticism. Because a poem is the coming together of many different components (line, stress, meter, syntax, language, verse, stanza), I must fully acknowledge each of those elements in order to properly analyze poems and make informed decisions about which poems I choose for the Special Collections exhibition, and be able to defend these decisions on the exhibition labels that will accompany each selection. In his introduction to *The Poem’s Heartbeat: A Manual of Prosody*, Alfred Corn states, “To use prosody in reading poems, we have to hear what is audible, certainly, but we must also apply prosodic conventions not entirely governed by the sound of ordinary, unliterary speech,” thus I
will use the “inner ear” which I have developed through my study of poetry at SLU to find poems that exemplify the various poetic components (Corn xxi). I will also use the library research skills that I have acquired through my FYS, FYP, various other classes, and employment at the interlibrary loan office, to locate poems within Special Collections as well as other libraries that I plan to utilize to expand the breadth of my exhibition.

This project will be beneficial to the field of poetry because to my, and my mentors’, knowledge, there is not currently an anthology specific to Adirondack poetry. Because my exhibition will be a visual anthology of Adirondack poetry, I could be the first person to attempt an endeavor in this specific field. My project would bring as much Adirondack poetry as time allows to one location, and although my project will begin as purely a visual anthology, it creates the possibility for me to expand this project to include a bound or digital anthology in the Fall 2013 semester. This project will add to the breadth of poetry already written about the Adirondacks through the supplementation of my personal Adirondack response poems.

**Detailed Explanation of Topic**

Specifically, I want to study Adirondack poetry. I take “Adirondack poetry” to mean any poem set in the Adirondacks, any poem written specifically about the Adirondacks, or any poem that was physically written by a poet in the Adirondacks that illustrates any Adirondack influence. I want to utilize my poetic knowledge to identify keystone poems about the Adirondacks so that I can expose the St. Lawrence community to the wide variety of Adirondack poems. I want to study my voice as a poet and analyze the effects that living in the Adirondacks for the past two and a half years has had on my voice as an aspiring writer and my outlook on life as a young adult. I want to study the vast content of ODY Special Collections and bring books, poems, and pieces of artwork that I find notable to the public eye.
At the end of my fellowship, I will have an exhibition in ODY displaying poems about the Adirondacks, the rare books that hold these poems, and photographs or pieces of artwork that serve to add visual stimulus and diversity to the exhibit. I will help to reevaluate the Adirondack collection within the ODY Special Collections. I will develop a prototype for an anthology of Adirondack poetry. I will strengthen my own poetic voice through response poems. I hope to begin to truly understand the significance of the Adirondacks within the St. Lawrence community.

**Research Design and Methodology**

Because my project is also a creative endeavor, I have many different aspects that need to be acknowledged and addressed. I will use archival research skills in order to find material pertinent to my exhibit. I will provide literary analysis for the poems that I consider for my exhibit. I will exercise my skills in creative writing through my poetic responses to those poems I read.

I have constructed my project to include two mentors: Mark McMurray and Sarah Barber. This is crucial to my project because my project is multidimensional, including archival research as well as poetical analysis and the writing of original poems. As the curator of the Special Collections, Mr. McMurray would assist me in my search through Special Collections for viable poetry as well as advise me through the process of putting together an exhibit, an endeavor in which I, as of now, have no experience. As a professor of poetry, Dr. Barber would advise me through the analysis of the poems I find as well as help me take a critical eye to my own work through diligent revision.

The materials I need in order to put together my exhibit are, for the most part, located in ODY Special Collections. These will be made up of: manuscripts, rare books, and
photographs/other art work. I will travel on research visits to other Adirondack libraries, as well as search the digital catalogs of other Adirondack institutions to find other poems and books for exhibition. We will investigate appropriate ways to borrow or acquire material for exhibition as the project continues.

Over the course of my fellowship, I will accomplish five objectives. First, I will do a preliminary exploration of Special Collections, so I can survey the selection of Adirondack Poetry in ODY and begin to develop a catalog of poems from which I can select final poems for exhibition. I will then expand my catalog by exploring other Adirondack libraries, namely other universities, the Saranac Lake Public Library, and the Adirondack Museum in Blue Mountain Lake. Third, I will condense my selection to those poems that I feel best represent Adirondack poetry, while simultaneously locating visual components, in the form of photographs or other artwork, to accompany the poems and books I have selected for exhibition. Fourth, I will write exhibition labels for every entry in my exhibit as I finalize them. As I go through this experience, I will constantly document my feelings and experiences through poetry. I will begin to edit and revise my poems once I begin to select specific items for the exhibit, so that I can also decide which poem(s) of my own to include in exhibition.

The only feasible failure I can foresee is that of my own devices. Surveying a collection of literature, selecting specific pieces from said literature, and physically compiling a visually stimulating and educational exhibit is something that I do not have experience with. If I do not manage my time successfully, then I will fail to complete this project. However, with the schedule that I have developed and my willingness to engage in preliminary research before the summer, I feel that I will be able to finish the project in a timely manor.
Conclusion

All I have ever wanted to do with my life is to read and to write. Before I even began to think about applying to college, I knew full well that I would major in English. As I have furthered my education through the St. Lawrence English department, I have found myself, unsurprisingly, a creative writer, and perhaps slightly more surprisingly, a poet. My education at SLU has caused me to realize poetry as my passion. As someone who is interested in pursuing a life in poetry, at this stage in my education, I want to experience as much poetry as is possible to find. I also plan to apply to writing programs at the graduate level after I graduate from St. Lawrence in order to ultimately receive my MFA in poetry. The skills in writing and analyzing poetry that I will use over the course of this project will help me in further educational endeavors as a creative writer.

I consider St Lawrence my home and always will, thus the Adirondacks will always be a part of my identity as a Laurentian. While I am enrolled at SLU, I want to immerse myself in my home as much as possible. Until now, while this has meant studying John Henry Rushton in my FYS, it has also meant hiking, canoeing, skiing, swimming, and enjoying the beauty that is innate to the Adirondacks. Through this project, I will be able to take a second scholarly approach to my exploration of the Adirondacks, allowing me to find and capture the allure of the Adirondacks and share that with all of us that call this home.

I hope to excite others about the Adirondacks and poetry, two things that I already passionate about. I hope to bring more people into Special Collections to share with them the vast knowledge that is located in our own library. I will produce a creative exhibit of Adirondack poetry that will bring in an audience. I will write my own poems to help my portfolio and my voice as a poet grow.
Appendix A. Selected Bibliography


**Appendix B. Timeline**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Number of Hours to be Spent</th>
<th>Week Number</th>
<th>Expected Outcome</th>
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<tbody>
<tr>
<td>1</td>
<td>Preliminary survey of ODY Special Collections Adirondack poetry</td>
<td>As much time as necessary to complete survey</td>
<td>Before arrival in May</td>
</tr>
<tr>
<td>2</td>
<td>Research Visit to Adirondack Museum, Blue Mountain Lake, NY</td>
<td>8 hours, one full day</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Research visit to Saranac Lake Public Library, Saranac Lake, NY</td>
<td>8 hours, one full day</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Survey of online catalogues of other Adirondack institutions</td>
<td>6-7 hours a day for one week</td>
<td>1-2</td>
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## Appendix C. Level of Preparation/Experience

<table>
<thead>
<tr>
<th>#</th>
<th>Activity Description</th>
<th>Time Required</th>
<th>Grade Received</th>
<th>Other Experience</th>
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<tbody>
<tr>
<td>5</td>
<td>Selection of final literature to be used in exhibition</td>
<td>6-7 hours a day for two weeks</td>
<td>3-4</td>
<td>Develop concise/diverse collection of Adirondack poetry</td>
</tr>
<tr>
<td>6</td>
<td>Writing of reaction poems</td>
<td>1-2 hours a day for four weeks</td>
<td>1-4</td>
<td>Explore my reactions to Adirondack poetry through my own poetic voice</td>
</tr>
<tr>
<td>7</td>
<td>Organization of final exhibit</td>
<td>3-4 hours a day for four weeks</td>
<td>4-8</td>
<td>Compile a visually and intellectually stimulating exhibit in ODY</td>
</tr>
<tr>
<td>8</td>
<td>Writing of Exhibition Labels</td>
<td>3-4 hours a day for four weeks</td>
<td>4-8</td>
<td>Provide sufficient descriptions for components of exhibit</td>
</tr>
<tr>
<td>9</td>
<td>Revise personal response poems</td>
<td>1-2 hours a day for four weeks</td>
<td>4-8</td>
<td>Select 1-2 personal poems for exhibition</td>
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</table>

### Skills/technique knowledge needed during research

<table>
<thead>
<tr>
<th>#</th>
<th>Library Research Skills</th>
<th>Relevant Classes</th>
<th>Grade Received</th>
<th>Other Experience</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Library Research Skills</td>
<td>FYP, FYS, Methods of Critical Analysis, Advanced Poetry Workshop, Contemporary Irish Poetry</td>
<td>3.5, 3.75, 3.0</td>
<td>Interlibrary Loan student employee</td>
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</table>

### Skills in poetry

<table>
<thead>
<tr>
<th>#</th>
<th>Familiarity with Adirondack literature</th>
<th>Relevant Classes</th>
<th>Grade Received</th>
<th>Other Experience</th>
</tr>
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<tbody>
<tr>
<td>3</td>
<td>Familiarity with Adirondack literature</td>
<td>FYS: “Oh What a Rushton: Canoes, Canoeing, and Culture”</td>
<td>3.75</td>
<td>Placed 3rd in James Ligon Price III poetry contest (Spring 2012)</td>
</tr>
<tr>
<td>4</td>
<td>Writing Competency</td>
<td>American Lit I, American Lit II, Methods of Critical Analysis, Intro Creative Non-Fiction, Techniques of Fiction, African Francophone Lit</td>
<td>3.5, 3.5, 3.0, 3.75, 3.5, 4.0,</td>
<td></td>
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Works Cited


CHANGES IN LUNG SURFACTANT PROTEIN CONCENTRATION OF *XENOPUS LAEVIS* LARVAE DURING SPONTANEOUS METAMORPHOSIS

SLU Fellowship Proposal

**Abstract**

The development of air breathing during amphibian metamorphosis is characterized by dramatic physiological and morphological changes in the organism, most notably a significant increase in lung size that is mediated by thyroid hormone and corticosterone. The concentration of lung surfactant proteins, essential proteins for lung function and the classical specific markers for lung development, is thought to increase post-metamorphosis, accompanying the aforementioned increase in lung surface area. However, relatively few studies have been conducted on the development of the amphibian respiratory system, despite its gross biological significance, especially in regards to the study of human fetal lung development. With the recent cloning of the genes of *Xenopus laevis* surfactant protein B and C, we are able to determine a key set of tools with which we can quantify the changes in surfactant gene expression and the corresponding proteins. We hypothesize that the concentrations of lung surfactant protein B and C will increase following the spontaneous metamorphosis of *Xenopus laevis* tadpoles. To evaluate this hypothesis, we will determine the timeline of normal lung development and the attendant changes in the expression of lung surfactant protein coding genes.
Introduction

It has long been understood that amphibians transition from water-breathing to air-breathing organisms during the rapid remodeling of metamorphosis, though the development of the amphibian respiratory system has received relatively little attention (Atkinson and Just, 1975). This transition is remarkably similar to the rapid shift to air-breathing that human fetuses undergo once they are born (Hyatt et al, 2006). The morphological changes of the amphibian breathing system have overall been determined, namely a post-metamorphic increase in lung size (Witechi, 1956), though comparatively fewer studies have been done to determine the biochemical basis of these changes.

Two key indicators for mammalian and non-mammalian lung development are surfactant protein B (spB) and C (spC), which play a crucial role in stabilizing the lung during and post-metamorphosis. Indeed, failure to express the gene for spB has been linked to neonatal respiratory failure in humans, a condition that has only recently been remedied with the application of a corticosterone mist to premature infants, which promotes spB production. Surfactant proteins primarily function to reduce surface tension, which increases lung compliance (the ability of the lung and thorax to inflate and deflate), prevents lung collapse at the end of expiration, and facilitates recruitment of collapsed airways (Weaver and Conkright, 2001). Studies have indicated that this surfactant system is highly conserved across a wide variety of vertebrates (Daniels and Orgeig, 2001), and given that organogenesis is also highly conserved across divergent vertebrate species (Anderson and Ingham, 2003), we can postulate that the mechanisms and biochemical changes in amphibian lung development will also be reflected in the lung development of other species, such as humans. Amphibian development occurs in an extra-uterine environment (Nieuwkoop and Faber, 1975), and we can thus use
*Xenopus laevis* as a viable and effective model to study both non-mammalian and mammalian lung development.

Tadpole and adult frog lungs are much simpler than those of mammals, and basically consist of two long bilateral air sacs that are connected to the larynx (Okada et al., 1962). The degree of septation, or division of the lung cavity into parts, seems to increase post-metamorphosis, as shown in Figure 1 below. This increase in septation supports the hypothesis that surfactant protein also increases following metamorphosis.

**Figure 1.** Actin stains of tadpole (left) and frog (right) lung septa. Photographs taken using SPOT Camera imaging software.

The research I plan conduct this summer for my SLU Fellowship is to quantify the expression of the spB and spC genes during the development of *Xenopus laevis* from tadpole
larvae to early juvenile stages. By quantifying the expression of surfactant protein genes over multiple developmental stages, we will create a timeline for the expression of these genes during lung development. We hypothesize that there will be a significant increase in the expression of the spB and spC genes following metamorphosis. Specifically, we plan to investigate this hypothesis using a collection of tadpoles and frogs at various Nieuwkoop-Faber developmental stages, especially those from immediately prior to, during, and post-metamorphosis. Most importantly, our studies will include Nieuwkoop-Fabor (NF) stage 66, the final stage in metamorphic climax.

Methods

Rearing of Xenopus Developmental Stages

Xenopus developmental stages will be grown in Dr. Schreiber laboratory at St. Lawrence University. At appropriate stages, animals will be euthanized and the lungs removed by dissection. Lungs will be flash frozen in liquid nitrogen and stored at -80°C prior to RNA isolation. All of the protocols for caring, handling, and euthanizing animals used in this study will be approved by the St. Lawrence Institutional Animal Care and Use Committee (IACUC).

RT-PCR

The tool we plan to use to measure gene expression is quantitative reverse transcription-polymerase chain reaction (qRT-PCR). qRT-PCR is an extremely sensitive technique that allows us to measure the relative number of messenger RNAs (mRNAs), the molecule that carries the instructions for how to build proteins within cells. The mRNA
sequences for the spB and spC genes from *Xenopus laevis* have already been cloned and are available from a database maintained by the National Center for Biotechnology Information (NCBI). The expression of the spB and spC genes has been shown to occur throughout the lung of the *Xenopus* swimming tadpole soon after the initiation of lung development (Hyatt et al., 2007). Although Hyatt et al. (2007) demonstrated the expression of the spB and spC genes using RT-PCR, they did not make quantitative measurement. However, qRT-PCR and RT-PCR are very similar protocols indicating that the technical aspects of our project are achievable. Because the mRNA sequences for the spB and spC genes have been cloned, we have the knowledge to design the primers and probes necessary for qRT-PCR.

**Potential problems**

The molecular protocols that we will use to conduct the research described in this proposal have been used in previous studies in Dr. Temkin’s laboratory. The most unpredictable component of the project is how many individuals of each stage we will need to obtain a sufficient amount of RNA for qRT-PCR. However, even if we need to pool lungs from multiple individuals, it should not be a problem, since we will have an abundant supply of the *Xenopus* developmental stages we will require.

**Conclusion**

**Personal benefits**

Upon joining the research team in Dr. Schreiber and Dr. Temkin’s laboratories during the spring of my first year at St. Lawrence, I discovered that I had an incredible passion for research that ultimately has a significant potential to contribute to medical research. Over the
course of the past year, I have been exposed to the wonderfully exciting fields of evolutionary-developmental and ecological-developmental biology, both of which have tremendous ties to medical research. After co-authoring an abstract and attending the Society of Integrative and Comparative Biology conference in San Francisco this past January, I decided to pursue an MD/PhD following graduation from St. Lawrence, and am planning on applying to said programs this summer. Working with *Xenopus* in the lab has offered me tremendous insight into infant and larval development, and has piqued my interest in the genetic basis of development, ultimately leading me to pursue studies in epigenetics as a research physician. I plan to use my practical experience from the past year, my current independent research with Dr. Temkin and Dr. Schreiber, and the work done in this proposal’s project to create an SYE and honors thesis in evolutionary-developmental biology in their labs next year. I am truly fortunate to be able to pursue such a high-quality degree of research as an undergraduate student, and hope to apply my excellent training and learned skills to my future projects in epigenetics as an MD/PhD.

*Community benefits*

First and foremost, this project will benefit St. Lawrence University tremendously due to its contributions to the university’s strong tradition of quality study and commitment to undergraduate research. The data from this project, with its significant implications for future study and human application, will coalesce into a poster presentation for the St. Lawrence community, complementing the work already done in the biology department and a potential publishable paper. We plan to present the data from this project at the Society for Integrative and Comparative Biology in 2014.
Our work on this project will offer crucial data to the field of evolutionary-developmental biology, particularly in regards to medical research. Once we establish the parameters for using qRT-PCR to quantify surfactant gene expression, a entire world of possibilities will be available to us. We can then manipulate the variables that control metamorphosis, namely thyroid hormone and corticosterone to induce metamorphosis, and subsequently evaluate their individual and combined effects on spB and spC expression. Because of the highly conserved nature of organogenesis across vertebrates, we are able to draw significant connections to human fetal development, and will be able to contribute noteworthy research to the clinical sphere. This project will benefit the entire scientific community, especially those whose research translates directly into improved medical practice, and we are enormously excited about the possibility of sharing our work with other researchers and gaining greater understanding from their projects as well.
Appendix A: Literature Cited


## Appendix B: Timeline

<table>
<thead>
<tr>
<th>Week</th>
<th>Activity</th>
<th># Hours to be spent</th>
<th>Expected outcome</th>
</tr>
</thead>
</table>
| 1-4  | Dissecting out tadpole and frog lungs for each NF stage, homogenizing them and putting them through a protein assay to determine what concentration is required for the rest of the summer  
Reading and reviewing related scientific papers | 40 | Determine the optimal concentration of lung to use in Western blots and RT-PCR |
| 1-4  | RNA isolation  
Reading and reviewing related scientific papers | 40/week | The concentration of mRNA will dramatically increase as we look at more mature frogs and move down the NF developmental stage table |
| 3-7  | qRT-PCR: Targeting the spB and spC sequences with the cloned gene, amplifying the mRNA for each NF stage, determining any changes in mRNA concentration  
Reading and reviewing related scientific papers | 40/week | The protein concentration will dramatically increase as we look at more mature frogs and move down the NF developmental stage table |
| 8-9  | Data analysis, documenting results on paper  
Reading and reviewing related scientific papers | 40/week | Creation of a poster presentation and paper detailing the research |
Appendix C: Level of preparation and experience

<table>
<thead>
<tr>
<th>Skills/technique/knowledge needed during research</th>
<th>Relevant classes</th>
<th>Grade received</th>
<th>Other experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal care: handling, euthanization, dissection under a dissection scope</td>
<td></td>
<td></td>
<td>Independent study with Dr. Schreiber</td>
</tr>
<tr>
<td>RT-PCR</td>
<td>Genetics</td>
<td>Currently enrolled</td>
<td>Independent study with Dr. Temkin + Dr. Schreiber</td>
</tr>
<tr>
<td>Western blots</td>
<td>Comparative Animal Physiology (Bio 247)</td>
<td>4.0</td>
<td>Independent Study with Dr. Temkin + Dr. Schreiber</td>
</tr>
<tr>
<td>Gel electrophoresis</td>
<td>Biology 101 Biology 102</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Solution preparation, homogenization of lungs, general lab knowledge (pipetting technique, lab safety, chemical reactions)</td>
<td>Chemistry 104 Organic Chemistry 221 Organic Chemistry 222 Biology 101 Biology 102</td>
<td>4.0 Currently enrolled</td>
<td>Independent Study with Dr. Temkin + Dr. Schreiber</td>
</tr>
<tr>
<td>Data analysis</td>
<td>Biology 101 Biology 102</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>SPOT Imaging software</td>
<td></td>
<td></td>
<td>Independent study with Dr. Schreiber</td>
</tr>
</tbody>
</table>

### Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Justification</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>RNA Isolation Kit</td>
<td>Isolates the RNA in preparation for qRT-PCR; ensures intact, high quality RNA</td>
<td>$250</td>
</tr>
<tr>
<td>DNase</td>
<td>Removes contaminating DNA from RNA preparations prior to the highly sensitive qRT-PCR process, since no RNA purification method is able to remove 100% of the contaminating DNA. We only want to make RT-PCR products, not PCR products based on a genomic DNA template, and the DNase will enable us to do that.</td>
<td>$100</td>
</tr>
<tr>
<td>Primers and Probes for qRT-PCR</td>
<td>Seeks out target DNA in preparation for reverse transcriptase (which produces complementary DNA, which is then amplified)</td>
<td>$300</td>
</tr>
<tr>
<td>qRT-PCR Kit</td>
<td>Contains all necessary enzymes (reverse transcriptase, Taq DNA polymerase, proofreading polymerase) to ensure proper amplification of the desired segment.</td>
<td>$400</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$1050</strong></td>
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</table>
Street Art in the Twenty-First Century

![Street Art](image)

**Figure 1.** Andre the Giant – OBEY GIANT street art sticker (Shepard Fairey)

**Abstract**

Street art is considered to be the art movement of the twenty-first century. Though it has been evolving worldwide since its manifestation over fifty years ago, recent developments have caused a street art revolution. Contemporary street art is very different from its ancestor, graffiti. It is important to differentiate between the two. The importance of preserving street art is frequently overlooked, though studying it is increasingly essential. Street art in a certain time and place can allow us to gain a deeper perspective on the culture in which it exists. It reflects the creative, political, and cultural aspects of its context, and provides insight on what the masses think about contemporary issues rather than just an elite few. Keeping this in mind, the purpose of my project is to create a street art exhibition in the Richard F. Brush Art Gallery for the spring semester of 2014. To this end, I will research street artists, collect street art, and document the process. I will collaborate with my mentor, gallery director Catherine Tedford, drawing from her knowledge of street art as well as her extensive experience arranging exhibitions. Library and gallery resources will supplement my research. This project will involve travel to New York City and Montreal to visit known artists and street art experts, and to view street art in context. Additionally, I will create legal street art of my own and include it in the show. I will use resources available in the Fine Arts Department and the gallery, as well as my personal materials, to experiment with designs and techniques. This project will highlight the importance of preserving street art. It aims to foster in the St. Lawrence community an awareness, interest in, and understanding of, street art.
Introduction

Street art is considered by some to be the art movement of the twenty-first century (Waclawek 8). Though it has been evolving worldwide since its manifestation over forty years ago, recent developments have caused a street art revolution. This encompasses a now infinite number of ideas and subjects to draw from, a wider usage of media and physical context, and a greater following by the masses (Bou 6). Contemporary street art can encompass stencil art, sticker art, wheat-pasting, poster art, street installations, and traditional graffiti art, although I will later expand upon the idea that, despite a close relationship, street art and graffiti are incredibly different.

The aim of my summer project is to create a final exhibition that will feature not only works of known street artists, but also legal street art that I create myself. Therefore I will be both the curator of the exhibition and an artist featured in the show. This will provide me with the opportunity to improve my artistic abilities, become incredibly familiar with a facet of the contemporary art scene that is rapidly growing in importance, and give me experience creating my own exhibit. These are all skills I intend to use during the remainder of my college experience and in my post-graduate career as well. My mentor, Catherine Tedford, will give me guidance as I curate the exhibition and will be a valuable reference for my research of street art. She will also help me as I experiment with different ways of creating my own street art. (See Appendix E – Samples of Artwork). Although she will be a valuable resource for me in completing this project and we will be working closely over the course of the summer fellowship, she will mainly be there to aid me in carrying out my own ideas and providing suggestions when needed.

I will also work with street artists and street art experts, including Sterling Downey, founder and director of the Fresh Paint Gallery in Montreal. I will also take a trip to New York City to visit Martha Cooper, the world’s leading street art photographer. While there I will tour places like the Five Points and SoHo districts, places known for vibrant street art. I will also go to the Wooster Collective tenth anniversary exhibit (Wooster Collective is an organization devoted to the recording and showcasing of ephemeral art, specifically street art.) Additionally, I will work with Oliver Baudach from Berlin, who is the director of the only sticker-focused street art gallery in the world. This preparation will provide me with enough information to be well-informed on the subject in order to curate a successful gallery exhibition. I will also be able to converse knowledgeably on the subject with street artists and street art experts. The gallery exhibition, featuring my own work as well as works of known street artists, will be complete with a curator’s lecture and curator’s statement, as well as an artist statement about my own work. My goals as far as this project goes are fourfold: I will gain experience with all the aspects of working in a gallery, which is crucial for my post-graduate career; I will become well-versed in all aspects of street art, a subject I am very interested in and intend to carry into my career; I will have the time and focus to improve my artistic abilities; and I will gain the credentials of having my work shown in a gallery. All of these advantages will bring me closer to my goal of working in the world of fine arts and becoming an artist.

The study of street art is important for many disciplines, including anthropology, sociology, cultural criticism, art education, and even archaeology (Bowen 23). This is because it is a reflection of the creative, political and cultural aspects of its every-day society. It can therefore reveal much about
the context of a culture, even beyond the artistic side. If it is preserved, we can gain deeper perspective on the culture by studying the street art of the time and place. Further, the content of street art often influences and reflects the opinions of the masses, which can provide us with a rare insight into what the general population thinks about contemporary issues, politics, society, etc.

Figure 2. "No Trespassing" (Banksy)
Theoretical Underpinnings

Since the eighteenth century, historians and archaeologists have been studying the street art and graffiti writing on the walls of ancient Pompeii. Street art and graffiti have given historians an incredible amount of information about the city itself, and even about the wider culture of ancient Rome. The practice was considered a respected form of communication in ancient Rome, and historians have found that most everyone participated in it in Pompeii, regardless of class, gender or age (Ohlson 1). It gave a voice to the masses, not just the elite few; now it is as if the creators of those words and images are speaking through time, telling us what went on in the city and what life was like there. However, time has erased all but ten percent of the city’s street art, and although much information was acquired from the study of what is left, imagine how much more we would know today if we had access to the other ninety percent.

This situation makes historians and archaeologists aware of the importance of preserving contemporary street art, which is part of what this project is about. Defining characteristics of “street art” include accessibility to the general public, a visually and contextually engaging nature, an ephemeral nature, and, of course, the historically (though not always) illegal placement of the art in the street. Another possible defining characteristic of the term is its ability to enliven urban areas not only visually, but also with the content of the message (Bowen 22). Contemporary street art is often thought of as a response to the Modern separation of art and life. Unlike art in the Modern era, it is not meant for an elite few; it is created for and belongs to anyone who sees it. It has the power to engage the masses, arresting passersby through aesthetic means. In turn, this forces them to consider the context and meaning of the art (Riggle 243). This makes it an ideal way of communicating messages to, and arousing the passions of, the general public. It is accessible to every-day citizens—one doesn’t need to pay to see...
it, or even go out of his or her way. Street art breaks down the barriers between the art world and every-day life by placing the art in every-day life.

As previously mentioned, contemporary street art is very different from its ancestor, graffiti. It is important to differentiate between the two (Lewishon 18). Graffiti is not supposed to get a message across to the general public, or be understood by it. True graffiti belongs to the artist and the artist alone, and is usually meant to mark territory and separate the artist from whoever else may wish to claim the territory. That is why most graffiti is a name, or the name of a group, or exclusive codes and secret words to convey messages to select parties (Mayring). Graffiti is also frequently intended to be vandalism. On the opposite end of the spectrum, the intention of street artists is not to vandalize; it is to get a message across to the general public, to brighten up the world around them, to express themselves. Almost anyone who views a work of street art is not only meant to understand it, but also be involved in its internal meaning. It is much more inclusive. It is meant to belong entirely to the masses (Lewishon 15). Street art can comment on politics, the economy, environmental issues, or simply every-day life.

Figure 4. Street Art vs. Graffiti (Shepard Fairey and unknown)

Street art is studied in many disciplines, including cultural criticism, archaeology, history, art, art history, and art education. In art education especially, there is a growing appreciation of the ephemeral art that decks the streets. In the fall of 2010, Lewis & Clark College’s library, along with their Study Abroad Program, facilitated a project in which students were to document street art throughout New York City. They used mobile technologies to document and catalogue the street art with the hopes that the project might serve as an example of creating collaborative digital image projects with modern technology and social media (Watzek). Students and faculty at Occidental College conducted a project to capture the history of street art in Los Angeles, attempting to bridge the gap between the art world/college art studies and street art. They collaborated with the Museum of Contemporary Art on a street art exhibition to document and critically examine street art and its history in Los Angeles (Harris, Henderson, McLain, and Walsh).
Figure 5. “Crossing the Line” – Montreal (Roadsworth)
**Explanation of Topic and Research Question**

For my summer project, there will be an allotted amount of time each week devoted to collecting, editing, and cataloguing artwork for the final exhibition. I have started to email some artists I have in mind for this project, as it is important to contact them as early as possible to begin to set up times for communication and/or meeting times. I have asked my mentor, Ms. Tedford, to train me in the first week of the fellowship to scan and catalogue the artwork I collect to add to the Richard F. Brush Art Gallery website under “Contemporary Street Art.” This collection will also be submitted to ARTstor, the online international image library. I also plan to document certain aspects of my project through the use of film recording. I will document the creative processes I go through as I create my own street art, the trips I take to New York City and Montreal, and possibly interviews with street artists and street art experts. The film recordings will be made public through the use of social media, including YouTube, Facebook, and Twitter. These are online feeds that I will continue to update and add information, images, etc. to well after the fellowship period ends to continue to promote the digital preservation of street art and to increase the interest of audiences.

I will also devote time to creating my own artwork (see Appendix E – Samples of Artwork). This will involve researching and experimenting with different techniques used by street artists, including stenciling, poster-making, silk-screening, and sticker-making. However, after considering the research I have done thus far, I will most likely focus on stickers, posters, and murals. I am taking Painting II this semester, and plan to use the open-ended assignments to begin experimenting with street art. I have a sketchbook for my painting class as well, and I will record my ideas for my own street art in this sketchbook. It will be valuable to record ideas for street art designs in a sketchbook that I will use throughout the semester, as I plan to have the planning for the designs completed prior to the fellowship period. I will record different versions of each possible idea, and I will plan out and research the steps needed to complete each design. This will save a lot of time beforehand, because when the fellowship period begins, I can concentrate on executing the final versions of the previously-planned designs. At the current time I am simply working on getting any ideas I have down into my sketchbook and I do not have particular themes in mind. However, the street art that interests me the most is often about social issues, such as LGBT rights and anti-sexism. Otherwise, I mostly appreciate street art that is aesthetically valuable. This is why Shepard Fairey has been a huge influence on my ideas – he creates a lot of art with themes related to peace and tolerance in some way, particularly relating to social issues; he uses different historical and current situations to get his message across. Although I am creating street art, I will not do anything illegal in relation to this project. I am merely looking at street art and creating street art through an academic lens to increase my knowledge of a subject of interest, as well as to personally grow as an artist and member of the art world.

Although the project will be completely my responsibility, I will be in close contact with my mentor during the fellowship period, checking in with her at necessary times and drawing from her knowledge of street art as well as her experience running a gallery. This, as well as the timeline I have prepared (see Appendix B – Timeline) will help to keep me on track as far as creating the final exhibition.
Research Design, Methodology and Preparation

My strategy for the completion of this project begins with pre-fellowship preparation. This involves a thorough reading of all the sources I have listed in my bibliography. I have already read all of the sources, but I plan on re-reading all of them before the fellowship period commences. I am also keeping a sketchbook for recording and planning out design ideas for my own street art. This will allow me to draw from the ideas I have already recorded and focus on the creation of the final products during the fellowship period.

In addition to the preparation I have taken for the actual fellowship, I have taken several relevant classes that will be useful for me in completing this project. I have taken Drawing 1, Painting 1 and 2, Color, and Abstract Drawing. These classes have given me a strong basis of artistic skill to begin this project. I also work at the Richard F. Brush Art Gallery under my mentor, Catherine Tedford, with whom I have been working closely on street art research for nearly six months. Working for the gallery has also given me some skills associated with creating and setting up a gallery for an exhibition.

I have created a detailed timeline that chronologically lists the activities necessary for this project. It breaks down each week of the allotted fellowship period in order to assure that all aspects of the project are completed on time (see Appendix B – Timeline). Adhering to this timeline will allow me to stay on track and complete all necessary activities by the end of the eight-to-ten week period. Materials needed for the completion of this project include various art supplies that I have on hand or that I can find in the bookstore; I will also need sticker paper for the printing and creating of stickers. I will use the NCAT and Photoshop, resources available to me here at SLU, to create the final versions of some of my street art designs. I intend to hand-draw or paint most of my designs and then mass produce some of them using these resources. I also have a color printer, which will be useful to have on hand. I will require transportation to New York City as well. I have included an itemized budget (see Appendix D – Itemized Budget) because I am also applying for extra financial aid for the additional expenses; it will be helpful for me to have the extra money since there are several necessary expenses involved with this project. The gallery has also agreed to assist with any extra costs that may be
involved. Additionally, I may be able to use the Jeanne Scribner Cashin Endowment for Fine Arts if additional funding is required.

The most likely cause for this project not being completed as expected is the fact that it can be difficult to judge how long an art project will take, and therefore some designs may take longer to complete than I have previously predicted. However, I am willing to spend any extra time needed, and I’m confident that I will be able to circumvent this problem should it arise. I feel that my intense interest in the subject, the steps of preparation I have taken thus far, and the timeline I have prepared below leave me well-equipped to undergo this endeavor.

![Image of Peace Propaganda by Shepard Fairey](image.png)

**Figure 6.** Peace Propaganda (Shepard Fairey)
Conclusion

Working as a research assistant for the Richard F. Brush Art Gallery has instilled in me an intense interest in street art. The more I research the subject, the more fascinated I become. Self-expression and freedom of speech are very important to me, and those are two ideas which street art embodies; art is also very important to me. Street art has become such a passion of mine that I want to carry it well beyond the fellowship period or even the exhibition itself. In fact, I hope to use what I learn and produce for a possible Senior Honors Project when I am a senior. For that project I would like to create a body of street art-esque works that comment on social issues like the ones I have already described. I would like to continue studying and working with street art beyond college as well. There are many reasons I want to carry this project into the future – there is so much to learn about street art, and the knowledge it has to offer is valuable to many disciplines. I want to help publicize the importance of street art, because it is becoming increasingly essential to the contemporary world. It allows us to look more closely at the every-day people of a culture; it allows for freedom of speech and public expression, for beautifying the world around us. It sheds light on issues that happened in the past, and allow us to see what is going on in a culture now. The people of ancient Pompeii thought it was a beautiful, respectful and interactive way of communicating and commenting on current issues of the time. If we can view it that way and realize that it is an asset to cultural studies and art education especially, we can recognize the importance of preserving it.

Considering my previous experience in relevant fields, as well as the steps of preparation I have already taken regarding this project, I am well prepared to begin. I have thoroughly read all the sources I am using and have started planning out designs for my street art. I also have a clear understanding of what I need to do, and a well-planned timeline that will allow me to adhere to the time frames I have given myself for each step and process of the project. The SLU summer fellowship program will be an ideal opportunity for me to gain skills and credentials in areas I am interested in and plan to use in my future career, as well as the rest of my time here at St. Lawrence University. I will be able to expand upon my artistic abilities, to increase my knowledge of the inner workings of an art gallery, and to become well-versed in the subject of street art. The research fellowship will provide me with the time and focus necessary to accomplish these goals. This experience will give me a strong base with which to carry my interests into the future.

The gallery exhibition is intended to increase awareness in the subject of street art among St. Lawrence students and the greater community. My hopes are that understanding of street art will be increased, and that the works I collect from other artists and the works I create myself will foster an interest in street art on campus.
Figure 7. “Role of Art in Montreal” (unknown)
A. Bibliography


### B. Timeline

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
<th>Hours to be Spent</th>
<th>Expected Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before start of fellowship</td>
<td>Thorough reading of sources Sketchbook for street art designs Contact artists</td>
<td>*Semester before fellowship</td>
<td>Familiarity with sources Have ideas available for finalization Set up meetings with artists</td>
</tr>
<tr>
<td>1</td>
<td>Contact street artists Training Work on street art designs</td>
<td>10 10 20</td>
<td>Ask for stickers/artist statements Learn about Photoshop/NCAT Complete at least 2 designs</td>
</tr>
<tr>
<td>2-3, 5</td>
<td>Contact street artists Edit/catalogue stickers Work on street art designs</td>
<td>5 10 30</td>
<td>Maintain contact/acquire stickers Complete at least 3 designs</td>
</tr>
<tr>
<td>4</td>
<td>Contact street artists Edit/catalogue stickers Work on street art designs Meet Sterling Downey in Montreal (all day)</td>
<td>5 10 20</td>
<td>Maintain contact/acquire stickers Complete at least 2 designs Talk to street art expert</td>
</tr>
<tr>
<td>6</td>
<td>Contact street artists Work on street art designs NYC – Martha Cooper/5Points, SoHo/Wooster Collective 10yr anniversary exhibition</td>
<td>2 30</td>
<td>Remind artists submissions due Complete at least 3 designs Talk to a leading expert, view leading street artists’ work in gallery, view street art in context</td>
</tr>
<tr>
<td>7-8</td>
<td>Edit/catalogue stickers Work on street art designs</td>
<td>20 30</td>
<td>Finish editing/cataloguing all stickers Complete at least 3 designs</td>
</tr>
<tr>
<td>9</td>
<td>Work on street art designs Put together exhibition boards Write curator’s statement</td>
<td>20 20 5</td>
<td>Complete and finalize all designs Finish sticker exhibition boards</td>
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### C. Preparation/Experience

<table>
<thead>
<tr>
<th></th>
<th>Skills/Techniques/Knowledge required for research</th>
<th>Relevant Classes/Positions Held</th>
<th>Grade Received</th>
<th>Other Experience</th>
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<tbody>
<tr>
<td>1</td>
<td>Multi-media art skills</td>
<td>Drawing1(FA131B)</td>
<td>3.25</td>
<td>Creating and selling commissioned artwork in a timely fashion</td>
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<tr>
<td></td>
<td></td>
<td>Abstract Drawing, ULI and Other Forms(FA235A)</td>
<td>3.75</td>
<td>Exploring artistic techniques outside class parameters</td>
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<tr>
<td></td>
<td></td>
<td>Color(FA228A)</td>
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<tr>
<td></td>
<td></td>
<td>Painting1(FA229B)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Painting2(FA230A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teaching Assistant for Drawing 1 and Abstract Drawing classes</td>
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<td></td>
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<tr>
<td>2</td>
<td>Knowledge of installation practices</td>
<td>Installations Assistant and Monitor/Research Assistant at the Richard F. Brush Art Gallery</td>
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<tr>
<td></td>
<td>Gallery lighting</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Framing/Installing/Caretaking of artwork</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Knowledge of Photoshop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Knowledge of relevant issues frequently seen in street art</td>
<td>Dreams, Desire, and Madness in Film and Literature(GNDR247A)</td>
<td>Currently enrolled</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Language and the Human Experience(ANTH205A)</td>
<td>Currently enrolled</td>
<td></td>
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</table>
### D. Itemized Budget

<table>
<thead>
<tr>
<th></th>
<th>Item</th>
<th>Amount Requested</th>
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<tbody>
<tr>
<td>1</td>
<td>Art materials</td>
<td>$100.00</td>
</tr>
<tr>
<td>2</td>
<td>Miscellaneous travel expenses for New York City and Montreal</td>
<td>$150.00</td>
</tr>
</tbody>
</table>

*The gallery will cover most of the travel expenses to Montreal and New York City (transportation, lodging, and meals), but I am asking for $150 to help defray costs, if possible.*
E. Sample of Artwork

Figure E.2. Final Project for Abstract Drawing. Graphite pencil. March 2012.

*I am including this image of a work I did for a class so viewers can get a sense of my typical style. This image will probably not be used for the street art I create during the fellowship period.
RECONSTRUCTING STORMINESS VARIABILITY USING TERRESTRIAL SEDIMENT LAYERS: ANALYSIS OF CORES FROM A POST-GLACIAL MIRE, NORTHWESTERN ADIRONDACKS, NEW YORK

Abstract:

The sudden increase in extreme storms and weather have people in communities in New England and beyond questioning if the increase in storms is a natural occurrence or whether they themselves are responsible for the obscure weather around them. The goals of this project are to better understand Holocene climate in the northwestern Adirondacks, specifically at Fox Mire, South Colton, NY, and to collect evidence to suggest whether the increase in storminess is a natural, cyclical occurrence, or whether it is influenced by human activity. Sediment cores will be taken from Fox Mire and analyzed through a series of tests, through which data will be collected and compiled into a graph for visual representation. These tests include grain size analysis, Loss on Ignition and Magnetic Susceptibility. Examining terrestrial sediment influx to the mire will show when high energy flooding events moved terrestrial sediments into an otherwise calm, low energy palustrine environment. By comparing graphs with multiple variables, the data should show evidence of storms and terrestrial floods in the North Country, which will lead to a better understanding of Holocene climate, ultimately allowing scientists to examine whether these flooding events are actually becoming more common in the geologic timescale. The final product will be a poster and presentation wrapping up the findings of the study.

Introduction:

The purpose of this study is to better understand Holocene (approximately 11,500 years ago to today) weather patterns and, as a result, climate in the North Country. This study will examine palustrine (wetland) sediment infill of the Fox Mire (Figure 1), which has been an enclosed basin since the retreat of the Laurentide Ice Sheet (LIS). In these meters of extracted sediment, it is proposed that a terrestrial-sediment influx will be recorded and be used as a proxy to Holocene climate.
The Fox Mire location (Figure 1) is an ideal Holocene-recording basin because of its placement within a kame-and-kettle terrain, which was deposited by the LIS as it retreated from the Adirondack region approximately 11,000 years ago. Kames and kettles are ice-contact landforms, which record deposition at the decaying ice front. Kames are steep sided piles of siliclastic sediments deposited by glaciers, and kettles are shallow bodies of water that form as the glacier retreats. Mires, or filled kettles, are negative relief features that preserve terrestrial, palustrine and organic sedimentation of the area, making them a good proxy for climate (Rodbell, 2013). Sediment influx to the mire is controlled by weather on the day-to-day, month-by-month, year-by-year basis, which, when analyzed individually and together helps paint a picture of Holocene climate. A good recorder of these temporally distinct weather events is terrestrial input, something readily available at Fox Mire. Terrestrial input is a good proxy for palaeostorms because when large storms, such as in nor’easters or hurricanes, pass through the region, sediments are mobilized from the high-gradient kames surrounding the mire and are washed into the basin. This influx of siliciclastic sediments interrupts normal palustrine organic sedimentation making a distinct, coarse-grained, inorganic sediment layer. The thicker the layer, it can be presumed, the greater the intensity of the storm (assuming the entrance of the stream/rivulet is static with time).

Palaeostorm research contributes to the understanding of long-term climate and helps to define the distribution of large storms and hazards over a longer period than can be recorded by instrumental collection of daily variables (Parris et al., 2010). Studies analyzing Holocene storminess have been preformed in many places across
the northeast, but not the northwestern Adirondacks. Scientists have completed studies in New England (Brown et al., 2000), New Hampshire and Maine (Parris et al., 2009), the more populated side of the Adirondacks and the Green Mountains (Bierman et al., 1997, Noren at al., 2002), and the Catskills (Mullins et al., 2005). Places like Burlington, Plattsburg and Albany have large populations and are easily accessible by interstate; which draws scientists to them. Because St. Lawrence County is so rural and is 90 minutes off any major interstate, outside scientists do not use their resources to come here. Because of this, there is little understanding of palaeoweather patterns and climate in the northwestern Adirondacks; it is virtually a dead zone for palaeoenvironmental analysis.

Studies completed in other locations across the northeast are not useful when studying the northwestern Adirondacks because they are not in the same ecoregion, and are therefore not subject to the same weather and climate that would be recorded in this region and at Fox Mire (Table 1) (Omernik, 1987). Ecoregions are larger than ecosystems and cover large areas of land or water with characteristically distinct assemblages of species, biodiversity, flora and fauna (Omernik, 1987). Due to the difference in ecoregions, it is necessary to collect local Adirondack data for this study.

Table 1: Differences in ecoregion (Omernik, 1987) and climate (NOAA, 2013) for various locations in the northeast.

<table>
<thead>
<tr>
<th>Location</th>
<th>Ecoregion (Omernik, 1987)</th>
<th>Climate (NOAA, 2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fox Mire, South Colton, NY</td>
<td>Northeastern Highlands</td>
<td>Northern Plateau</td>
</tr>
<tr>
<td>Burlington, VT</td>
<td>Northern Appalachian Plateau and uplands</td>
<td>Champlain Valley</td>
</tr>
<tr>
<td>Syracuse, NY</td>
<td>Erie/Ontario Lake plain</td>
<td>Great Lakes Basin</td>
</tr>
<tr>
<td>Catskills, N</td>
<td>North Central Appalachians</td>
<td>Mohawk Valley</td>
</tr>
<tr>
<td>Albany, NY</td>
<td>Northern Appalachian Plateau and uplands</td>
<td>Hudson Valley</td>
</tr>
</tbody>
</table>

Because of the difference in ecoregion and climate between the Adirondacks and populated places where research has been performed, understanding extreme weather events that occurred in such places is not helpful when trying to determine palaeoclimate for this region. Extreme storms cause problems locally and globally and are almost impossible to predict. Locally this region has experienced the effects of many large storms that have caused destruction both physically and economically. Recently the northeast has seen the flooding of the Raquette in Colton in April 2011 (Piché, 2011), the destruction of Hurricane Irene two years ago along the east coast (and through Vermont), and Hurricane Sandy that caused turmoil and excessive flooding down state.

Through common observation, these storms appear to be more frequent, which most people quickly relate to the effects of human activities and global warming. Though it seems like these storms are becoming more frequent, it is possible the rise in storms is perfectly normal within the cycles of the geologic time scale. This study will
examine data collected from Fox Mire and will begin to look for cyclical trends that would suggest that either these storms are natural, or that humans may have exacerbated their occurrence rate/intensity. Though the study will not prove or disprove global warming, the data collected should show whether these storms are actually becoming more common in the geologic time scale. The more that can be understood from past storms and weathering patterns, the more scientists will be better able to predict the cyclicity, and probability of future storms.

Methodology (modified from Rodbell, 2013):

Data analysis for this project will take place in the St. Lawrence Geology Department; the department has the equipment and instruments needed to complete the research. Contact has been made with Dr. Don Rodbell ’83 from Union College, who specializes in global climate change, and has offered his expertise and laboratory for data analysis, if needed. Thus, travelling to Union College to meet Dr. Rodbell and use his laboratory is a possibility.

Throughout this project, methods from Union College’s Laboratory for Sediment Cores will be followed for proxy data analyses (Rodbell, 2013). In order to find the best location for coring, it is necessary to tile probe the mire. This will show the deepest locations in the mire, exposing the longest record of sedimentation into it.

*Mire bathymetry mapping (Tile Probing)*

In order to best locate the core extraction sites, a bathymetric map of the Fox mire will be generated based on an array of tile probing data. Dr. Stewart and I will use a long, attachable metal tile probe to estimate depth across the mire. These “z” values will be input into Surfer 9, a contouring and 3D surface mapping software, to generate an approximate 3D bathymetric map. Based on this map, we will collect the primary core (core 1) from the deepest location in the mire; this core will represent the longest sequence of deposition into the basin (thus, temporally, the longest record).

*Livingstone Corer*

A total of 4 (potentially 5) cores will be taken using a Livingstone corer (Figure 2) across the mire from the deepest, centrally located area to the basin edge so stratigraphy can be made both across and vertically through the mire (Figure 1). This general stratigraphic analysis will give a better understanding of the mire’s history of infill. These cores will be taken to the lab where they will undergo a series of tests.
Grain Size Analysis

Changes in sediment size suggest sediment transported by different mechanisms. Large flood events increase stream velocity and discharge, which increases the competence level of the stream, allowing siliclastic terrestrial layers to be transported easily and carried into the mire. These sediments are then deposited on top of pond/mire sediments that are fine grained and laid down over long periods of time (Parris et al., 2010). The stratigraphy of the mire should show this change in grain size, relating to the influx of water into the system. A Coulton LS Laser Diffraction Particle Sizer, which analyses grain size through the use of laser beams, will be used to analyze particle size.

LOI

Loss on Ignition (LOI), the amount of carbon contained in the sediment, is another method used to determine periods of increased transport of terrestrial material into lakes. When LOI percentages are high, generally dark brown, organic rich muds are present. Sediments found in lakes are typically inorganic and have low LOI percentages. When high LOI percentages are found in the stratigraphy, it can be
concluded that a mass wasting event eroded a nearby hillside and washed organic sediments down the slope of the hill into the lake (Parris et al., 2010). In order to perform this test the sample material must be dry, so weights are not thrown off. A small sample of sediment must be weighed on an analytical balance and heated in a furnace to 1030°C for 15 minutes. At this temperature carbon in the sediment sample will be burned off, leaving behind only the inorganic minerals and sediments. After ridding the sample of the carbon, weigh the sample again and determine the percentage of difference, and thus the LOI (Rodbell, 2013).

**Magnetic Susceptibility**

Magnetic susceptibility (MS) is another method used to determine chemical differences between organic, terrestrial sediments and inorganic, lake sediments. High MS values correspond to inorganic materials and minerals with magnetic properties, while low MS values correspond to an influx of organic materials, and thus flooding events. Magnetic susceptibility is determined by using a Bartington MSF2 MS meter.

**Carbon Dating**

Carbon dating would allow the cores to be dated absolutely instead of just relatively. This would add another variable that would contribute to the effectiveness of the overall project. However, this costs approximately $600.00 per sample, and would only be possible if funds are available from the Fellowship, department of geology or other funding source.

**Hypothesis:**

Interpreting terrestrial influx at Fox Mire will create an understanding of Holocene climate in the northwestern Adirondacks since the LIS retreat. Performing a series of tests on the cores from the mire, such as grain size analysis, LOI and MS, and cross-referencing collected data to similar studies in the northeast will provide evidence of storms and terrestrial floods in the North County. Determining magnitude and cyclicity of previous storms and flooding events will help to prove whether these storms are indeed cyclical in the geologic timescale, or if they are increasing due to human impact. If the storms are cyclical, the data collected will become useful in starting to predict similar storms for the future.

All data collected from this study will be condensed into graphs; representing the data graphically will allow peaks and patterns in terrestrial influx at Fox Mire to stand out. A study preformed in Vermont by Noren et al. (2002), published a graph similar to one that will be produced from data collected from in the North Country (Figure 3).
Figure 3: Results of high-resolution, whole-core grain size (GS) analysis and composite sediment record (COMP) for two Lake Morey Cores. MO-1 is the distal core and MO-2 is the proximal core. Peaks in GS reflect high-energy fluvial transport events and thus the location of terrigenous layers (indicated in composite sediment record with white bands) Calibrated $^{14}$C dates (with 1σ uncertainties) shown for each core (Noren et al., 2002).

Having a graphical representation of data is the key to interpreting data with multiple variables. Figure 3 is just one example a graph to be produced and interpreted in this study; similar graphs will be created using other variables such as LOI and MS. Compiling the graphs will show correlations between the different variables in terrestrial sediment influx, thus, giving a visual representation of interpreted storminess in the northwestern Adirondacks since the retreat of the LIS.

The biggest problem that could arise from my project is lack of siliclastic terrestrial input into Fox Mire, though this is highly unlikely. If this does happen, it will still be possible to use the same cores for a different study. These cores represent approximately 12,000 years of deposition into the basin, and therefore a lot of data can be extracted from them. An alternative study is to radiocarbon date the basal organic
layer of the mire, which will allow us to determine the timing of the LIS retreat off the Adirondacks. This data will allow us to define both the Champlain Sea and Lake Iroquois chronologies and give a better understanding of the landscape development in the kame-and-kettle terrain.

Summary:

Participating in a SLU fellowship would give me my first research opportunity in something I am truly interested in. I am planning on attending graduate school for palaeoclimate following my time here at SLU, and I am hoping this project can also be a "test-run" to see if this is the area of palaeoclimate research I would like to pursue. This research project would show my commitment to the scholarly community by proving that even as an undergrad I am motivated enough to take on a full research project to further my knowledge in my field. My project will be helpful to the SLU Geology department by creating a working relationship with Union College that will be mutually beneficial. My advisor and I will also be very well versed in the technology of the Livingstone corer, and will be able to develop a geomorphology (GEOL210) laboratory using the corer; thus preparing the next students to continue this work. Though the fellowship technically ends at the end of the summer, I will continue working on the project as a senior thesis throughout my senior year. I will be able to share my research with the greater geologic community in October 2013, through a poster and presentation at the annual Geological Society of America conference in Denver, CO. I will also present my poster at the Festival of Science in Spring 2014 and at a geology department lecture.

I am very excited to get this project underway and plan to go to Fox Mire as soon as the snow melts, in April or May, in order to tile probe the mire and practice with the Livingstone corer. This will give me the practice I need to make sure I have the best cores possible for my research when I go to core the mire come June. I would also like to travel to Union College to meet Dr. Rodbell and get to know how to use both the Livingstone corer as well as the instruments available in Union College’s laboratory.

References:


Rodbell, D., 2013, Laboratory Methods: Laboratory for Sediment Core Analysis, Geology Department, Union College: http://www1.union.edu/rodbell/corelab.html.


Appendices: A

My research this summer will include all the sources included in my reference section as well as the following sources.


Appendix B: Timeline

I plan to start working on this project in April/May so that I can be more prepared for the summer. I will be tile probing the mire, possibly travelling to Union college to meet with Dr. Don Rodbell, and practicing with the Livingstone corer.

<table>
<thead>
<tr>
<th>Activity</th>
<th># hrs</th>
<th>wk #</th>
<th>Outcome</th>
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</thead>
<tbody>
<tr>
<td>1 Tile probe mire, practice</td>
<td>40+</td>
<td>Apr/May</td>
<td>Data for GIS map (wk 3). Deepest location of mire</td>
</tr>
<tr>
<td>Livingstone corer</td>
<td></td>
<td>(Prep.)</td>
<td></td>
</tr>
<tr>
<td>2 Collect and manage data</td>
<td>40+</td>
<td>1</td>
<td>4-5 cores from mire</td>
</tr>
<tr>
<td>3 Core analyses</td>
<td>40+</td>
<td>2</td>
<td>Inventory, cutting, photographing, stratigraphic analysis, digitizing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>core stratigraphy, particle size analysis, X-ray diffractometry</td>
</tr>
<tr>
<td>4 GIS class with Carol Cady</td>
<td>40+</td>
<td>3</td>
<td>Develop skills to make a landscape model of mire</td>
</tr>
<tr>
<td>5 Proxy data analysis</td>
<td>80+</td>
<td>4/5</td>
<td>LOI, carbonate content, magnetic susceptibility</td>
</tr>
<tr>
<td>6 Data Analysis</td>
<td>80+</td>
<td>5/6</td>
<td>Interpret data</td>
</tr>
<tr>
<td>7 Creation final product/wrap up</td>
<td>40+</td>
<td>7</td>
<td>Final product</td>
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<tr>
<td>product/analysis</td>
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Appendix C: Required Skills

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<th>Grades</th>
<th>Other Experience</th>
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<td>Dynamic Earth</td>
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<td>Environmental Geology</td>
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<td>Geomorphology</td>
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<tr>
<td>Mineralogy</td>
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<td>4.00</td>
<td>Teaching Assistant</td>
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<td>Global Climate</td>
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<td>Glacial Geology</td>
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Appendix G: Proposed Budget

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<tr>
<th>Supplies</th>
<th>Estimated Cost</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Livingstone corer</td>
<td>Provided by Geology Department</td>
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</tr>
<tr>
<td>Bartington MSF2 MS meter</td>
<td>Provided by Geology Department</td>
<td></td>
</tr>
<tr>
<td>Coulton LS Laser Diffraction Particle</td>
<td>Provided by Geology Department</td>
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</tr>
<tr>
<td>Sizer</td>
<td>Provided by Geology Department</td>
<td></td>
</tr>
<tr>
<td>Camera</td>
<td>Provided by Geology Department</td>
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</tr>
<tr>
<td>Field Book</td>
<td>Provided by Geology Department</td>
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</tr>
<tr>
<td>Safety gear</td>
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<tr>
<td>Maps</td>
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<tr>
<td>Assorted supplies</td>
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<table>
<thead>
<tr>
<th>Resources</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>Microscopes/analytical tools</td>
<td>Geology Department</td>
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<tr>
<td>Transportation</td>
<td>Geology Department</td>
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<tr>
<td>GIS Support/Carol Cady</td>
<td>Elberty GIS Laboratory</td>
</tr>
<tr>
<td>Magnetic Susceptibility Balance</td>
<td>Union College</td>
</tr>
<tr>
<td>Loss on Ignition</td>
<td>Union College</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Outside University resources</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Dr. Greg Wiles</td>
<td>Wooster College, OH</td>
</tr>
<tr>
<td>Dr. Thomas Lowell</td>
<td>University of Cincinnati</td>
</tr>
<tr>
<td>Dr. Don Rodbell</td>
<td>Union College</td>
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<table>
<thead>
<tr>
<th>Monetary Request</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 nights lodging near Union College (2 rooms)</td>
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</tr>
<tr>
<td>Food (3 days)</td>
<td>$180.00</td>
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</tbody>
</table>

Total requested $480.00