

Eckley Summer Scholars and Artists Endowment - Proposal Rubric

Rating/Category	Excellent (9-10)	Good (6-8)	Fair (3-5)	Poor (0-2)
1. Project Description	The proposal identifies a motivating idea, problem, and/or question. It presents a clear project design with specificity about procedures and methods, including the analytic approach.	The proposal identifies a motivating idea, problem, and/or question and provides a general outline of project activities that includes procedures and methods.	The proposal does not identify a motivating idea/problem/question, and/or does not outline the proposed project activities.	The proposal does not identify a motivating idea/problem/question, nor outline the proposed project activities. It is not clear that the student understands the work to be completed.
2. Goals and Outcomes	The goals of the project are clearly stated. Specific products (presentations, publications, or other appropriate outcomes) are described and seem attainable.	The goals of the project are clearly stated. Products (presentations, publications, or other appropriate outcomes) are identified, but little detail is provided.	Project goals are referenced, but could be stated more clearly. Products are described only vaguely and/or seem unattainable.	The goals of the project are not clearly stated. Products are not described.
3. Originality/independent of coursework	It is clear that the project will make an original contribution to the field. It is clear how the project is independent of semester coursework.	Originality is addressed but not clearly proven. Independence of coursework is addressed but not clearly.	Originality is questionable. Independence of coursework is questionable.	The proposal demonstrates inadequate awareness of related work. The relationship between the project and a broader scholarly or creative field is not articulated. Originality and independence of coursework is not addressed.
4. Description of previous work	The proposal includes a synthesis of existing, related research or creative work. It is clear how the project fits into the broader scholarly or creative field.	The proposal summarizes relevant research or creative work. It is clear how the project fits into the broader scholarly or creative field at the local (IWU) level.	The proposal references some related work. A link is suggested between the project and a broader scholarly or creative field, but it is not clearly stated.	The proposal demonstrates inadequate awareness of related work. The relationship between the project and a broader scholarly or creative field is not articulated.
5. Methodology or technique	Methodology/technique is clear and appropriate for the project. Timeline is feasible, detailed, and consistent with activities described.	Methodology/technique is clear and appropriate for the project. Timeline lacks some detail but project is manageable in the time frame described.	Methodology/technique may lack detail. Timeline does not correspond to proposed activities or does not allocate sufficient time for some activities.	Methodology/technique lacks detail or is inappropriate for the project. Timeline is unsuitable and/or unrealistic for activities described.
6. Student Role in Project	Student had creative input in the project's development. Student will play a central role in project activities, including analysis and dissemination of findings.	Student will play a central role in project activities, including analysis and dissemination of findings.	Student plays an important role in project activities, but will not be involved in analysis or dissemination of findings.	Student is mainly an observer or data collector. Student will not be involved in analysis or dissemination of findings.
7. Faculty Recommendation	Recommenders provide a positive assessment of the significance of the project and its educational value for the student. Letters include a positive assessment of the student's ability to undertake the project within the stated timeframe. A plan for supervision and mentorship for the summer is described.	Recommendations provide a positive assessment of the student, the project proposed, the timeline, and the educational value for the student. There is evidence that mentoring will be provided.	Recommendations include a positive assessment of the student but do not address the project or the student's ability to successfully undertake the proposed project within the stated time frame. Role of mentor is vague.	Recommendations focus on student's academic performance and do not indicate knowledge of or support of the proposed project. Mentorship is not addressed.
8. Student Qualifications	The student is well qualified and prepared to carry out the project.	The student has sufficient knowledge and preparation to carry out the project.	The student's qualifications, preparation and knowledge on the subject are not clear or may be insufficient to carry out the project.	The application does not demonstrate sufficient background knowledge or qualifications to successfully engage in the project
9. Need, Impact and Benefit	The student makes a convincing case for his/her need for the award. The student's life experience, background, and/or goals indicate high potential for the summer experience to be transformative.	The student makes a strong case for his/her need for the award. The student's life experience, background, and/or goals suggest the potential for the summer experience to be transformative	The student articulates his/her need for the award. The student's life experience, background, and/or goals suggest the summer experience might be transformative	The student does not express a clear need for the award. The student's life experience, background, and/or goals suggest the summer experience is unlikely to be transformative.
10. Overall Quality of Application	Application materials are well written and well organized. The project is understandable to a professional outside of the discipline.	Application materials are generally well written and well organized, but the application includes some jargon or is sometimes hard to understand for a professional outside of the discipline.	Application materials are not written well and/or not organized well. The project is not easily understandable to a professional outside of the discipline.	Application materials are hard to understand and may use much field-specific jargon. It may not be clear that the student wrote the materials him/herself.
Scoring	90-100 (Outstanding/Definitely Fund); 80-89 (High Priority for Funding); 70-79 (Medium Priority for Funding); 60-69 (Low Priority/Do Not Fund); <60 (Do Not Fund)			2018

IWU Rubric based on the Summer Undergraduate Research Fund rubric, Office of Undergraduate Research, University of Connecticut (used with permission)

Can Thyroid Hormone be Used to Promote Corneal Nerve Regeneration?

Eckley Proposal for Jadyn Bothe, supervised by Dr. Tyler Schwend

Project Summary:

The cornea is the most densely innervated tissue in the human body. Corneal nerves perform critical functions including tear production and detecting harmful dirt and debris on the eye's surface. Corneal nerve damage is common following physical trauma or corrective surgery such as LASIK. Corneal nerves can regenerate; however, their regeneration rate can take many months or years, leading to a prolonged period of painful and irritating dry eye disorder and a loss of corneal sensitivity. The goal of this research project is to examine ways to hasten corneal nerve growth in animal models with the hope that insight gained from such studies can be applied to human medicine.

For many years, Dr. Schwend has studied the development and growth of corneal nerves in chick embryos. Neurons are comprised of small cell bodies with long cellular extensions, known as nerve fibers. In chick embryos, the growth of nerve fibers can be tracked and followed as they traverse from their cell body (origin of nerve fiber) to their final destination of the cornea. Knowing how long it takes for the nerve fibers to grow from their origin to destination allows for analysis of nerve growth rate. Dr. Schwend and his team recently showed that corneal nerve growth rate is increased following addition of thyroid hormone (TH) to the egg, where it is absorbed into the embryo's bloodstream and leads to a hyperthyroid state in the embryo (Patel et al., 2020). TH exposure led nerve fibers to grow faster and enter the cornea a day early. Nerves also grew more extensively throughout the cornea tissue. This study has raised the profile for TH to be a potential treatment for corneal nerve regeneration.

Now that the stimulatory effects have been established in the chick embryo (an avian species), the next question is whether TH can accelerate corneal nerve growth in a mammalian species (mouse), whose nerves are more closely related to ours. This is the basis of my proposed Eckley research. Dr. Schwend has begun a collaboration with a professor at the University of Illinois (Dr. Juan Davila) who studies mouse development and has a lot of experience working with and studying mouse embryos. The three of us will work together to study the effects of TH on mouse embryo corneal nerve growth and development.

For this study, we will elevate TH levels in pregnant mice by adding TH daily to the animal's drinking water. The TH taken up by the mother should be passed to the embryos through the placenta. Since there is little information regarding TH and corneal nerve innervation in mammalian species, the first part of the study will use many different doses of TH in the water to assess what dose can raise TH levels in the embryo. We will then determine whether such a dose impacts corneal nerve growth. Eyes, brain tissue and liver samples will be collected from sacrificed mouse embryos. Analysis of brain and liver samples will be carried out by Drs. Schwend and Davila to quantify changes in the cellular and systemic levels of TH in the embryo. Analysis of eye tissues will be performed by me. I will use an antibody staining technique that binds a fluorescent molecule to nerves and then use fluorescence microscopy to visualize the nerves in the mouse eyes. The aim of the project is to assess whether the stimulatory effects of TH seen in the chick embryo translate into the mice and, if so, establish a hyperthyroid mouse model to study the molecular mechanisms causing the accelerated growth with elevated TH. This work has prompt clinical implications as TH can easily be prescribed and administered orally or in eye drops to promote corneal nerve regeneration after harm.

Methodology of study

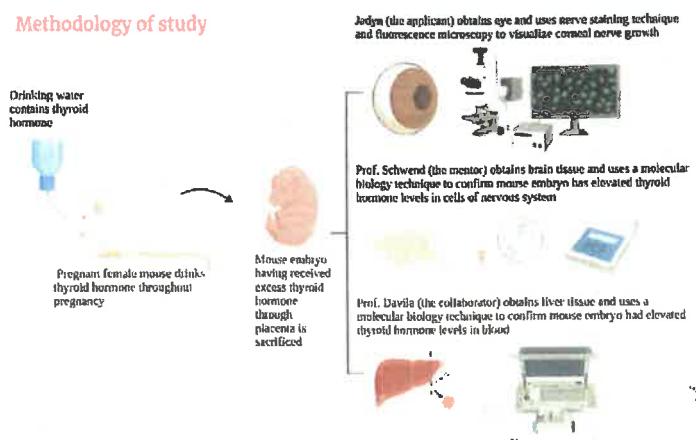


Figure 1: Methodology of Study.

All work regarding live animals will be conducted at University of Illinois. Our collaborator will impregnate mice and make them and their developing embryos hyperthyroid by feeding mom TH in her drinking water. Our collaborator will obtain mice embryos and harvest 3 organs (eye, brain, liver). The eyes and brains will come to IWU. I will conduct a nerve staining protocol followed by microscopy to observe the effects of TH on corneal nerve growth. Drs. Schwend and Davila will verify that embryos are hyper-thyroid using molecular biology techniques (Dr. Schwend using brain tissue, Dr. Davila using liver tissue).

Timeline

Embryonic tissue is being collected Spring 2023. Over the summer I will stain the eye tissues and perform fluorescence microscopy for 3-4 weeks. I will spend 1-2 weeks analyzing the microscopy data. I will spend 1-2 weeks correlating the nerve growth data with TH levels in the brain and liver of each embryo. We expect that embryos with increased TH levels will show faster corneal nerve growth rates. The final 1-2 weeks will be used to write up my results, consider next steps and, if data are suitable, generate a figure for publication.

Description of Previous Work

My Human Anatomy and Physiology coursework has prepared me to understand the nervous system and visual systems and made me proficient in dissecting specimens. Coursework in Medical Neuroscience and Advanced Behavioral and Human Neuroscience courses have enriched my understanding of neuroscience, the visual system, nerve anatomy, and physiology.

I am familiar with the research involving TH and corneal nerve regeneration from published research papers by multiple scientists, including Dr. Schwend's work which provides the foundation for the new experiments I will be performing. Dr. Schwend has begun to train me on the project's methodology so that I will be ready to start obtaining data in late Spring/Summer.

Long-Term Benefit for Jadyn Bothe:

The opportunity to perform scientific research that not only improves the collective knowledge about neuroscience but research that directly improves people's quality of life is of unparalleled importance to my values and goals as an aspiring researcher and physician. Using TH as a treatment for corneal nerve damage could improve the vision and lives of millions of people. This work is important to me as I believe it has the potential to improve the lives of others. Having the resources to pursue this research full-time throughout the summer will allow progress to be made on this important work and give me an incredible opportunity to improve my research skills and instill confidence in my ability to apply science to help people live healthy and fulfilling lives.

Exploring Environmental Inequities: Solutions to An Emerging Crisis

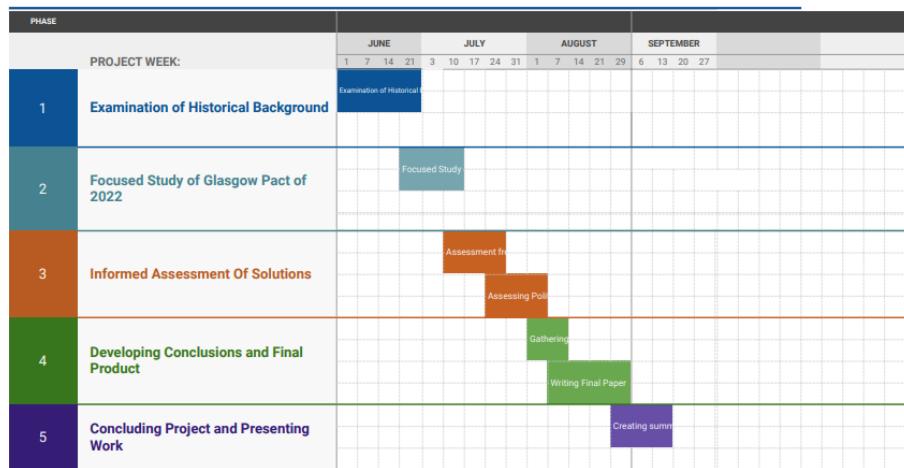
Climate change is now widely understood to be a global, immediate threat to human life. From island and coastal populations endangered by rising sea levels to catastrophic droughts in Africa, regions responsible for the least climate-change causing carbon emissions are often the first to suffer the consequences. Many of the most problematic emitters, such as the United States, China, and Russia, are countries with significant global power, unlike many of the countries most affected. These countries, such as Pakistan, are typically in the developing world, colloquially known as the global South. Current research on environmental justice offers a few suggestions for equitable plans, such as an equal per capita annual distribution, which distributes the global emissions “budget” equally based on the amount that can be emitted without irreversible damage. A second plan accounts for each country’s past contribution to carbon levels, the general principle being that major historical polluters must now make major sacrifices to fix the problem. Another such plan suggests allocating emissions in proportion to a country’s economic productivity, on the grounds that this will encourage efficient economic development. Many political philosophers agree that the best plan would follow a fourth approach, which implements John Rawls’ well known principle: any inequity should benefit the worst off in a society, in this case the countries that will struggle the most with the effects of climate change. However, the international efforts to enact a politically viable plan that accomplishes this goal while balancing the demands of justice for the global South and global North have not yet succeeded.

If I am selected to be an Eckley Scholar, my ultimate goal will be to contribute to a more equitable approach to environmental justice by investigating solutions that will address this delicate balance. I will seek answers to the following questions: Considering the existing proposed scientific solutions, as well as the complex political history of environmental justice, what would a just and practical solution look like? What actions are required of the international community to satisfy the claims to justice of both the global North and the global South, and come closer to global equity?

From June 1 to June 21, I would begin by examining primary and secondary sources on the history of international agreements applying to the reduction of carbon emissions, from the Kyoto Protocol until the most recent Glasgow Climate Pact of 2022. In addition, I will research the political divisions that have led to ineffective agreements, and how this history informs current international relations surrounding environmental justice. From June 21 to July 10, I will focus specifically on the COP26 conference in Glasgow, and the resulting Glasgow Climate Pact and updated Paris Rulebook. My intention would be to show where these agreements failed to fully answer the claims of environmentally vulnerable countries and to hold countries heavily responsible for the issues discussed accountable, and the ramifications of these failures on our planet’s future. I will analyze how each agreement did or did not incorporate at least one of the four approaches previously described as a part of the path to determining which approach or combination of approaches is most feasible.

From July 10 to August 1, I would analyze the most viable solutions in detail. Informed by my understanding of political history, I will examine the merits and faults of each possibility both ethically and practically speaking. When considering the ethical aspect, I plan to consult sources rooted in political philosophy, such as John Rawls’ principles of assessing just social contracts as well as Charles Beitz’s application of this principle to the international sphere, to assess the weight of competing claims by the global North and South. I will then examine which aspects of each solution might successfully address the greater in weight and number of these claims with the goal of combining aspects with the most potential. I would spend my remaining time (August 1- August 25) analyzing the information I have gathered and

writing my conclusions in a final paper, with the goal of proposing a balanced solution that avoids the failures of past agreements. I would aim to present my research to the Political Science Department and at the John Wesley Powell research conference. Throughout my research process, I would have regular check-ins with my faculty sponsor, Professor Simeone, in which I will share my progress and address any issues or questions I may encounter along the way. Below, I am including a timeline of my proposed research.



My studies at Illinois Wesleyan have opened my eyes to how human rights and environmental issues intersect, particularly after reading Peter Singer's *One World Now* (2016) in my Multiculturalism and Its Critics class last year taught by Professor Simeone. The class focused primarily on globalization, and the merits of cosmopolitanism versus liberal patriotism when faced with global issues like climate change. My proposed research would update Singer's work with the inclusion of the Glasgow conference of 2022, and focus more narrowly on combining the approaches he describes to reach the most ethical and successful compromise. In class, carbon emissions were primarily used as an example of a global issue that could introduce conflicts between state sovereignty and cosmopolitan principles. By contrast, my research would approach the issue from the angle of regional environmental inequities, and address conflicts resulting from the competing demands of each region.

The Multiculturalism class curriculum contributed significantly to preparing me to take on this question, as any global approaches to reducing carbon emissions equitably are rooted in cosmopolitan principles to some degree. Through my experiences with environmental activism, including my current role on the executive board of the Sierra Student Coalition, I have gained background knowledge of climate change as a scientific phenomenon and environmental policy issue. I have also developed general research skills through the Wrongful Convictions First Year Experience class and my subsequent internship with the Snowman Network. My final research paper in the FYE class on the interaction between wrongful convictions and socioeconomic status was published in *Res Publica* last year.

I view this project as a synthesis of my lifelong interests in environmental issues, global human rights and international policy. I plan to attend law school after completing my undergraduate degree, and to work in international human rights law. Researching one of the most significant emerging global human rights issues is extremely relevant to my goals, and the Eckley Scholars Program would allow me to begin the work I am most passionate about and intend to continue throughout my career.

Forbidden Relationships: Queer Anxiety in Gothic Literature

Goal of the Project

For this project, I will write a scholarly research paper based on my research based on the connection of Gothic literature, its writers, societal expectations, and the queer community during the Victorian Era in England. I will write a twenty-/twenty-five-page literary critical essay, exploring parallels between queer couples in Gothic literature in the Victorian era and couples of that time. This paper will serve as the foundation, on which I will achieve my long-term goal, which is to write a novel in the Gothic genre focusing on the romance between a vampire and a human who meet in different time periods, one of which includes the Victorian Era in England. The Eckley Project will provide me with the necessary experience to continue research on my own after the end of the project. As a continuation of Eckley, I will write the corresponding part of my book during my Senior Writing Seminar. Additionally, I will apply for Research Honors during my Senior Year to research the other time periods my novel will include.

Methodology

I will research societal understandings of queerness, such as the sexual inversion concept in the Victorian era, and how they connect to how anxieties about queerness appeared in Gothic novels. I will use close reading and queer theoretical approaches to *Carmilla* by Sheridan Le Fanu, *The Picture of Dorian Grey* by Oscar Wilde, and *Frankenstein* by Mary Shelley. After that, I will spend time reading through I will place these novels in conversation with scholarly texts on Queer theory and Gothic literature, such as Michel Foucault's *The History of Sexuality*, Nina Auerbach's *Our Vampires, Ourselves*, and Eve Kosofsky Sedgwick's *Between Men*. In scholarly discourse, monsters that appear in literature often represent society's struggle or fear attributed to a particular historical period. I plan to use his discourse to scrutinize modern understandings of scholars on the Gothics. Based on these findings, I will compare and contrast the understandings of queerness in Gothic literature and the 17th-19th century authors who were marked for engaging in queer relationships, such as Lord Byron and Oscar Wilde.

Originality of the Project

In this project, I will research how the Gothics of the 17th-19th century in England reflected the anxieties of people who engaged in queer relationships. Mair Rigby in their article "Uncanny Recognition: Queer Theory's Debt to the Gothic" talks about the intrinsic connection between the Gothics and queer community, such as the taboo of romantic relationships between a human and a monster, the metaphor of a monster for queer identity, and an idea of both queerness and monstrosity as something familiar but uncanny. I plan to continue their research in the field and compare the lives of the authors of Gothic literature—Oscar Wilde and Lord Byron, for instance—to the novels I listed above by Le Fanu, Wilde, and Shelley. Using these authors' biographies, I aim to draw parallels between common conventions of the Gothic novel and social understandings of queer relations, including but not limited to incarceration, homoerotic attraction, and transgressions of other social norms. My interest lies in the question of whether one can draw parallels between the monsters representing society's fears and the documented anxieties of people engaged in queer relationships.

Outline of the Project

My project will be developed with these steps:

1. In May, I will do the queer reading of three Gothic novels: *Carmilla*, *The Picture of Dorian Grey*, and *Frankenstein*. This choice of books includes the connection between a monster (physically or morally) with a human, and the diversity of these relationships will provide me with a better understanding of motives in Gothic literature to later attribute to my novel.
2. In June and mid-July, I will read and create an annotated bibliographic entry of four articles/or one theory book per week. The texts I choose for this period of my project will explore different perspectives and theories on Gothic literature, and this period reflects my immersion in theory.
3. I will meet weekly with Professor Serraes to present the literature review of four articles/or a book. As a literary scholar, Professor Serraes will evaluate and provide me with feedback on the choice of my sources with respect to what is most beneficial to my project.
4. In mid-July, I will start writing a paper based on my findings. Writing 5 pages per week, I will have written 20-25 pages of literary analysis by the middle of August. I will spend the last two weeks of summer on revisions and feedback provided by Professor Serraes.

Previous Work

As an English-major student, I engage in close reading of every book assigned in literature classes and conduct research to support my thesis in papers. Throughout my education, I have taken various courses in English: Restoration and the 18th Century; Thinking Queer, Reading Queer; American Literature After 1945; and Writing Fiction. In these courses, I have gained skills in doing literary research and analyzing text and style. Additionally, my course work in the Social Problems and Greek Myths and the Hero classes gave me a clear understanding of where modern conceptions of queerness came from. I work as a writing tutor at the Writing Center on campus, which increases my skill and understanding of English papers and thesis writing.

Role of Faculty Sponsor

Professor Allison Serraes, as my literature professor in the “Thinking Queer, Reading Queer” course during the Fall 2021 semester, introduced me to the field of Queer Studies. After I came up with an idea for the Eckley Project, Professor Serraes, who has a research background in Queer Studies, provided me with the starting point of my research and referred me to the Queer Theory books. Throughout the preparation period, Professor Serraes and I discussed these books with the potential to connect them to the Victorian era in England and the chosen fiction books. As my professor, she fostered my deep interest in literary research, profoundly in queer literature. Professor Serraes, having much broader experience in literary research, will guide me through credible sources and help me provide the clearest possible evidence for my thesis.

Long-Term Goals

During Eckley, I will gain experience in thorough and quality literary research that will help me with my future education as well as with my writing. By Spring 2024, I will have applied to graduate schools, and Northwestern University is of particular interest to me since they will allow me to receive a dual degree in M.A. in English Literature and M.F.A in Creative Writing. With this research in my resume and potentially using this piece as a writing sample, my chances of getting admitted and receiving financial assistance greatly increase, which will allow me to pursue both my career interest as a literary scholar and my passion as a creative writer.