

OFFICE OF THE PRESIDENT

December 6, 2019

Dear Campus Community:

Welcome to the fall semester's Center for Undergraduate and Creative Activity (CURCA) celebration featuring musical talent, poetry recitations, the ever-powerful "Wall of Words," and poster sessions, all animated by the results of intensive student-faculty collaborations.

So powerful a pedagogy and so deeply infused is this work on our campus that Westfield State faculty, students, and the CURCA director and committee committed to creating two opportunities for us to celebrate these partnerships: one at the conclusion of both the fall and spring semesters. Thank you to the participants and to the CURCA director and committee who made this gathering possible.

CURCA fosters professional development and facilitates support for students and faculty to develop creative research together. A walk through the posters and performances today reveals how undergraduate research and creative activity is at the heart of a careful and brave exploration of the world we live in.

The students and faculty here today are asking questions that lead us to solutions in our shared world, questions about urban planning, environmental and human health, and ask us to consider spiritual practice and artistic creation to imagine a future we might create together. The power of the arts and humanities to interpret meaning around us, the strategies used by the social sciences to ask questions about how we live together, the data modeling of mathematics and sciences to help us make decisions, and the theoretically informed work in professional practices all direct us to the meaning of a Westfield State education.

May this celebration offer us a day of reflection, conversation about matters of the mind, and the hope that our student and faculty successes embody.

Yours truly,



Ramon S. Torrecilha, Ph.D.  
President

### ***Welcome to our 2019 Fall CURCA Celebration!***

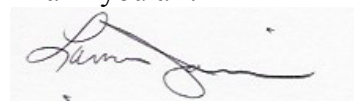
It is an honor to host an event that highlights the great work and dedication of so many students and their mentors. Over 300 undergraduate students representing disciplines from three Colleges will be sharing their diverse and engaging work. All students have explored the process, research, outcomes, and application of their knowledge and creativity to real-world issues. Their accomplishments are remarkable and worthy of celebration.

This Fall, we proudly showcase 170 posters, oral presentations, graphic art design projects in the Arno Maris Art Gallery, wall of words, and poetry readings. Our ceremony is enriched by the talents of Music Major Amy McGonnigal '23 performing George Phillip Telemann's *Canonic Sonata #2 in G Minor* and poetry readings by English Majors David Brazeau '20 and Julianna Campbell '20. As the Director, I am amazed and humbled by the talents and dedication of our students, faculty, and staff. It's an honor to showcase their research and creative works.

### ***Acknowledgements***

There are so many people to thank in helping to make this event a success! First and foremost, thank you to all of the students and their mentors who've worked tirelessly on their projects and presentations. Thank you President Torrecilha and Academic Affairs for your continued efforts to prioritize undergraduate research and creative activity through funding and advocacy. Dr. Robin White, our CURCA Faculty Coordinator, has been an invaluable champion for the mission of CURCA and a rock star faculty liaison! The dedicated efforts, insight, and support of the CURCA Advisory Board in helping to foster the growth of institutional research and creative projects is unparalleled. Thank you to Diane Savino, our CURCA Assistant, for her artistic ideas and designs, Gretchen Conrad, our fabulous administrative assistant for keeping us all on task, and our undergraduate intern Kendall MacLeod (English) for editorial content and event planning. Special thanks to Ryan Cramton and his Copy Center staff for their amazing ability to produce excellent work on short notice! Thank you to Facilities and Operations staff for setting up the Celebration space, the Chef and Catering staff, Chris Hirtle and his staff in Media Services, Mark Villani for preparing the Black Box Theater, David Shapleigh and Faith Lund for facilitating us in the Gallery, Informational Technology, Janet Garcia, David Friedman, Greg Sanocki, Addison Plante, and Alex Simisky in marketing for all of their help. Lastly, thank you faculty, staff, and student volunteers for your generosity of time, you help make today's Celebration run smoothly.

Thank you all!



Lamis Jarvinen, Ph.D.

Director, Center for Undergraduate Research and Creative Activity

## ***Fall 2019 CURCA Celebration Program***

<b>12:00 – 1:00 pm</b>	<b>Registrations &amp; Poster Setup</b>	<b>Ely 1<sup>st</sup> Floor Lobby</b>
<b>1:00 – 1:40 pm</b>	<b>Welcome &amp; Opening Ceremony</b> <b>CURCA Director, Dr. Lamis Jarvinen</b>  <b>Amy McGonnigal – Musical Performance</b> <b>David Brazeau – Poetry Reading</b> <b>Julianna Campbell – Poetry Reading</b>  <b>Professor Erica Morin – Guest Speaker</b> <b>Thomas Howard – SSuRF Guest Speaker</b>	<b>Black Box Theater</b> <b>(Ely 2<sup>nd</sup> Floor)</b>
<b>1:45 – 2:45 pm</b>	<b>Poster Presentations (Odd #s Present)</b> <b>Oral Presentations</b> <b>Wall of Words Group I</b> <b>Poetry Readings Group I</b>	<b>Ely 1<sup>st</sup> &amp; CURCA</b> <b>Arno Maris Gallery</b> <b>Ely 2<sup>nd</sup> Floor Lobby</b> <b>Black Box Theater</b>
<b>2:45 – 3:00 pm</b>	<b>Intermission &amp; Change in Posters</b>	
<b>3:00 – 4:00 pm</b>	<b>Poster Presentations (Even #s Present)</b> <b>Wall of Words Group II</b> <b>Poetry Readings Group II</b> <b>Student Art Exhibit</b>	<b>Ely 1<sup>st</sup> &amp; CURCA</b> <b>Ely 2<sup>nd</sup> Floor Lobby</b> <b>Black Box Theater</b> <b>Arno Maris Gallery</b>
<b>4:00 pm</b>	<b>Raffle Prize Drawing</b>	

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## ***Schedule of Oral Presentations***

### **Session I (1:45-2:45 p.m.) Arno Maris Gallery**

- 1:45 – 1:53 p.m.**      **Thomas Howard (History – Professor Erica Morin) - 2019 SSuRF**  
The Legacy of the Northampton New Haven Canal: A Picturesque Project Turned Burdensome Endeavor. What the Public Can Learn from Large Infrastructural Construction
- 1:55 – 2:03 p.m.**      **Katie Chapman (Psychology – Professor Alex T. Daniel) - 2019 SSuRF**  
The Effects of Anxiety on Attention: An Eye-Tracking Task
- 2:05 – 2:13 p.m.**      **Xuanyi Li (Communication – Professor Makoto Saito)**  
How Chinese Perceive American Global Strategies Towards China
- 2:15 – 2:23 p.m.**      **Rachel Tynan (Sociology – Professor Tamara Smith) - 2019 SSuRF**  
Inclusive Aging: Determining Needs, Strengths, and Preferences of the Older LGBTQ Population in Westfield MA
- 2:25 – 2:33 p.m.**      **Brandon Sullivan, Adam Hanna, Kyle Rourke (English – Professor Katja Jylkka)**  
Digging up Dracula: Unearthing Hidden Themes
- 2:35 – 2:45**              **Panel Q&A**
- 2:45 – 3:00**              ***Intermission***

### **Session II (3:00 -4:00 p.m.) Arno Maris Gallery**

- 3:00 – 3:08 p.m.**      **Cameron Hamilton (Biology – Professor Mao-Lun Weng) - 2019 SSuRF**  
Spontaneous Mutations in Organelles: *Arabidopsis thaliana*
- 3:10 – 3:18 p.m.**      **Glendaliz Gomez (Biology – Professor Mao-Lun Weng) - 2019 SSuRF**  
Assembly of the Chloroplast Genome of a Pelargonium Plant
- 3:20 – 3:28 p.m.**      **Austin Buckner (Biology – Professor Kristin Porter) - 2019 SSuRF**  
The Effects of Tattoo Ink on Macrophage Survival and Function during Dermal Wound Healing
- 3:30 – 3:38 p.m.**      **Avia Stanton (Biology – Professor Kimberly Berman) - 2019 SSuRF**  
NLRP12-Deficiency Consequences in Tissue Pathology, Inflammation, and Hyperglycemia
- 3:40 – 3:48 p.m.**      **Frederick Collins (Chemical & Physical Sciences – Professor Roderico Acevedo) - 2019 SSuRF**  
Changing the Specificity Pocket of DHFR to Select NADH as a Cofactor: A Cost Practical Approach
- 3:48 – 4:00 p.m.**      **Panel Q&A**

## College of Arts, Humanities, and Social Sciences

Poster #

### *Communication*

**Lafferriere, Kaytlyn '21**

15

Faculty Sponsor, Prof. Sinuk Kang

#### *Return to Sender*

Using different types of video editing techniques, this short fiction video presents an ethical dilemma in which a woman is faced with a mysterious envelope full of cash. The editing techniques include standard cut, cutting on action, match cut, cutaway, J & L cut, cross-cutting, montage, and jump cut.

**Li, Xuanyi '21**

Oral, 167

Faculty Sponsor, Prof. Makoto Saito

#### *How Chinese perceive American global strategies towards China*

This presentation is about how American global strategies towards China are viewed from the Chinese perspective. There are mainly three view-points: a kind of humiliation for Chinese; hegemonic; militarism

### *English*

**Ahearn, Margaret '23**

39

Prof. Beverly Army Williams

#### *Sharing Stories: Destigmatizing Sexual Assault*

This project proposal is focused on creating a survey that captures the perspective of sexual assault victims on WSU's campus who want to share their stories in an effort to help others. The project proposal, if approved by the internal review board approval (IRB), contains questions dealing with sexual assault and provides resources for help on campus.

**Aldabayeva, Saltanat '21**

42

Faculty Sponsor, Prof. Vanessa Diana

#### *Oral Healthcare Access in Native American Tribes*

In her novel *The Round House* (2012), author Louise Erdrich talks about a family whose mother struggled with health conditions due to an incident when at the hospital. This project will be geared towards researching how much oral healthcare access was presented to Native American tribes and how that lead to consequences like further sicknesses, death, and many other unfortunate conditions.

**Bass, Danielle '19**

156

Faculty Sponsor, Prof. Elizabeth Starr

#### *Sarah Leavitt's Tangles as a Resource for Dealing with an Alzheimer's Diagnosis*

My project will be focus on looking into ways for people to understand and deal with an Alzheimer's diagnosis. It will be exploring how graphic medicine can be used as a resource to help care-givers and receivers embrace and understand all aspects of a diagnosis.

**Bingham-Maas, Katrina '23**

81

Faculty Sponsor, Prof. Beverly Army Williams

#### *Benefits and Drawbacks of Women Traveling Alone*

I will present information on the benefits and the drawbacks of women traveling alone. I will also provide information on how to be safer while traveling in an unfamiliar area.

- Borowski, Madeline '23** 137  
 Faculty Sponsor, Prof. Vanessa Diana  
***Medicinal Herbs in Native American Culture***  
 In his short play “The Moon in Two Windows” (2007), Kiowa author N. Scott Momaday showcases the use of herbs for healing the physical and emotional ailments of his characters, shedding light on a significant part of Native American culture. This project will describe the various kinds of herbs, their uses, and the symbolism of these medicinal plants to the Native American people.
- Bouchard, Tyler '23, Frances Guadalupe '23, Chloe Sanfacon '23, Alexa Sullivan '23,** 28  
 Faculty Sponsor, Prof. Vanessa Diana  
***Breaking the Silence: Fighting the Violence Against Native American Women***  
 In her novel, *The Round House* (2012), Chippewa author Louise Erdrich illustrates the failure to find a balance between tribal law and federal law in cases of violence against Native American women. This project will explore the injustices against Native American women and will reveal its lack of recognition while highlighting efforts towards breaking the silence.
- Brooks, Carlton '23** 24  
 Faculty Sponsor, Prof. Vanessa Diana  
***Post 1900 Interaction Between Native American and U.S Government.***  
 In *The Round House*, Louise Erdrich of the Chippewa tribe discusses many court cases that are significant in understanding the relationship between the U.S. government and Native American government. In my project I will expand upon these cases post 1900, delving deeper into modern U.S. Native American interaction, to further garner an understanding of how the U.S. and Native American governments interact.
- Bryan, Miranda '23** 6  
 Faculty Sponsor, Prof. Elizabeth Starr  
***The Effects of Technology on Policing***  
 In my presentation, I will be displaying the effect that the implementation of technology has had on policing over the years. The findings are based on research as well as interviews from police officers from different levels of law enforcement.
- Cahill, Kyle '23** 47  
 Faculty Sponsor, Prof. Vanessa Diana  
***Portrayals of NA Culture in Media***  
 In his book of poetry *Nature Poem* (2017), Kumeyaay poet Tommy Pico challenges stereotypes that Native Americans face as a result of pop culture. This project details how Native Americans are stereotyped in movies, TV shows, cartoons, and beyond, as well as how others try to challenge these portrayals
- Colcord, Emma '20, Jennifer Chapdelaine '20, Ashley Day '19** 62  
 Faculty Sponsor, Prof. Vanessa Diana  
***Jim Thorpe: The Jack of All Trades***  
 In “The Moon in Two Windows” (2007), Kiowa author N.Scott Momaday considers throughout the play the role Olympian Jim Thorpe, member of the Sac and Fox Tribe, had on the successful Carlisle Football team, from one of the first Indian Boarding Schools. Using research, this project will depict a timeline of Jim Thorpe’s life and emphasize his interesting and significant impact in history.

- Dawicki, Sabrina '22** 37  
 Faculty Sponsor, Prof. Katja Jylkka  
***Supernatural Beliefs in the Victorian Era***  
 My presentation revolves around supernatural beliefs in the Victorian era. Using Bram Stoker's "Dracula," Elizabeth Gaskell's "Old Nurse's Story" and outside sources I will show the significance of supernatural beliefs in the Victorian era and how it had an impact on those living during this time.
- Devoti, Marion '23** 11  
 Faculty Sponsor, Prof. Beverly Army Williams  
***The Dating Game Has Changed: A Workshop Examining 21st Century College Dating***  
 This workshop uses research to examine how the online dating world as used by college students has changed the way these students view dating. The promotion of hookups through Tinder, commonly used by college students, rather than traditional dating, has changed the way Gen Z dates by devaluing healthy relationships and encouraging mistreatment and hook up based relationships.
- Enos, Jake '23** 3  
 Faculty Sponsor, Prof. Catherine Savini  
***Cell phone addiction***  
 Cell phone addiction is becoming an addictive problem in young adults. I want to show the health and social risks of the overuse of cell phones.
- Ethier, Tyler** 13  
 Faculty Sponsor, Prof. Vanessa Diana  
***Ghosts of The Battlefield***  
 In the novel *Grass Dancer* (1994), Standing Rock Sioux author Susan Power includes a Sioux character named Calvin Wind Soldier, who is a Korean War veteran. In this project, I will delve into aspects of Native American service in 20th century American wars, including how Native American warrior culture influenced enlistment and profiles of Native military heroes.
- Freund, Haley '23** 12  
 Faculty Sponsor, Prof. Vanessa Diana  
***Incorporating Native American Culture into Elementary Classrooms***  
 In the novel *The Grass Dancer*, Standing Rock Sioux writer Susan Power depicts a white teacher attempting to teach students on a reservation about their culture's history, but failing to do so because of her ignorance of Native American practices. This project will give methods and examples of children's literature that can be used in elementary classrooms to educate students about Native American culture.
- Freund, Haley '23** 14  
 Faculty Sponsor, Prof. Beverly Army Williams  
***It's Never Too Early: Consent and Sex Education in K-2 Classrooms***  
 This project examines research and best practices used to develop a lesson plan for K-2 students with a focus on consent and sexual education. The lesson plan will provide teachers with methods and resources to educate students about this topic in an age appropriate and effective way.
- Frost, Emily '22** 21  
 Faculty Sponsor, Prof. Katja Jylkka  
***Relating to 18th Century Poetry in the 21 Century***  
 William Wordsworth was a huge advocate for writing poetry so that it is relatable to the common man while reading one of his poems I really related to his writing. In my project, I will write poems about my own life, that I hope will be relatable to a larger audience.

- George, Shannon '22** 33  
Faculty Sponsor, Prof. Jylkka  
***The Misconceptions of Dracula***  
This project will be a poster that focuses on the misconceptions that people have about Bram Stoker's version of vampires due to today's glamorized pop-culture vampires. This poster will compare recent versions of vampires to Bram Stoker's "Dracula".
- Gervasi, Robert '23** 68  
Faculty Sponsor, Prof. Catherine Savini  
***Gambling Addiction***  
Gambling addictions are overlooked because it does not harm one's body like a drug addiction would. When a person wins a "bet", dopamine is activated in their brain as a reward system and makes them want to continue to gamble.
- Guptill, John '23, Kevin Racine '23** 16  
Faculty Sponsor, Prof. Vanessa Diana  
***Limits on Tribal Sovereignty Imposed by the US Justice System.***  
In her novel "The Round House" (2012), Chippewa author Louise Erdrich demonstrates there are many conflicting law codes in place between individual tribes' laws and the United States justice system, disenfranchising the Native Americans. Many court case rulings have slowly stripped away Native American tribes' sovereignty, yet tribes are working towards finding ways to regain that sovereignty.
- Jacques, Maddison '23** 118  
Faculty Sponsor, Prof. Beverly Army Williams  
***Power in the Ponytail***  
Research shows that building confidence in young girls helps them with succeeding in life. To support this in the Hajjar Elementary School and Marshall Middle School, my project is a letter to superintendent of Billerica Public Schools, requesting funding for and implementation of Power in the Ponytail
- Lamagdelaine, Lyric '22** 19  
Faculty Sponsor, Prof. Katja Jylkka  
***Perception of Women in British Literature***  
An art piece expressing the perception of and respect for women versus men's literature. Exploring the topic of pseudonyms, used by women in the nineteenth century, and its importance in British literature.
- Latosek, Andrew '20, Alex '20, Barsomo Nuay '21** 52  
Faculty Sponsor, Prof. Vanessa Diana  
***Influential Native American Athletes***  
In "The Moon and Two Windows" by Kiowa author, N. Scott Momaday readers are introduced to Jim Thorpe, an Olympic athlete and member of the Sac and Fox tribe. Our group is going to look at three native American athletes that have had an impact on their culture and athletics, we are interested in this topic because we feel that Native American athletes are under-represented and their history is not talked about as much as other athletes in today's culture.
- LeBlanc, Joe '23** 190  
Faculty Sponsor, Prof. Beverly Army Williams  
***How can we better the conversations on sexual assault during orientation?***  
My project will be on a poster to present my information on sexual assault. The poster will explain a proposed workshop to give to first-year students at orientation for more understanding on sexual assault and will describe the process I went through on creating this workshop.



- Le, Anhna '21** **25**  
 Faculty Sponsor, Prof. Katja Jylkka  
***Female Sexuality During the Victorian Era***  
 I will be doing a digital art piece that explains the concept of temptation in the poem “Goblin Market” by Christina Rossetti. Along with the art piece, I will be providing explanations of the characteristics within the art piece and explain why I chose the color or character design and the symbolism behind it.
- Miolla, Allysha '23** **100**  
 Faculty Sponsor, Prof. Beverly Army Williams  
***The Issue of Verbal Harassment in Schools***  
 My research-based one-act play to be performed at Agawam Middle and Junior High Schools is to express what verbal harassment in school among peers looks and sounds like. Not only will I show the effects harassment has on students, I will also educate students and faculty on how to report harassment to administration when they witness it.
- Moriarty, Siobhan '22** **5**  
 Faculty Sponsor, Prof. Catherine Savini  
***Cell Phone Addiction***  
 Cell phone use negatively impacts students in the classroom. This is important because the addictive power of cell phones decreases students focus during class and therefore results in lower academic performance.
- O'Connor, Gregory '22** **43**  
 Faculty Sponsor, Prof. Katja Jylkka  
***Keats in a Stoker Style***  
 This presentation will feature John Keats' poem "La Belle Dame Sans Merci" in the style of Bram Stoker's Dracula. The poem will be adapted into collective journal entries portraying the idea of found evidence, which was common of Victorian Era literature.
- O'Sullivan, Amy '22** **64**  
 Faculty Sponsor, Prof. Katja Jylkka  
***How to Build a Horror Story***  
 I will be comparing the components of two different 'horror' stories from British literature. I will be using Dracula by Bram Stoker and The Old Nurse's Story by Elizabeth Gaskell
- Peatman, Brooke '23, Shawnesse Thomas '23** **23**  
 Faculty Sponsor, Prof. Vanessa Diana  
***The Conflict that Native Americans Face with Sexual Assault***  
 In the novel *The Round House* (2012), Chippewa author Louise Erdrich touches on the frequency of sexual assault on Native land, and the lack of justice surrounding it. Our project will address Native American and U.S laws surrounding sexual assault on tribal land, failure to prosecute cases of sexual assault, and stories of people who have come forward to claim justice
- Powell, Noel '23** **46**  
 Faculty Sponsor, Prof. Vanessa Diana  
***Native American Spirituality***  
 My presentation is about Native American spirituality. I will inform on the cultural significance of Native American religious practices.

- Powell, Noel '23** 48  
 Faculty Sponsor, Beverly Army Williams  
***How to Create Empathy for Sexual Assault Victims***  
 My presentation will inform people on what empathy is and how it can influence helping behavior. This behavior can be applied to sexual assault victims to help manage their feelings of their traumatizing experience and help them too emotionally and mentally heal themselves.
- Remy, Sarah '21** 9  
 Faculty Sponsor, Prof. Vanessa Diana  
***Native American Representation in Massachusetts Schools***  
 In the novel *The Grass Dancer* (1994), Standing Rock Sioux author Susan Powers writes a few scenes about a white middle school teacher who studies Native American culture through stories, applies it to her students and even goes as far as to ask her students to share stories about their culture out loud in front of their classmates. This project will focus on how aspiring educators can provide proper Native American representation in their classrooms while still meeting the requirements of the Massachusetts State standards.
- Rief, Erin '20, Hannah Freeman '22, Rachel Meacham '19, Janey Beardsley 21** 150  
 Faculty Sponsor, Prof. Vanessa Diana  
***A Closer Look at Sioux Spiritual Ceremonies***  
 In the novel *Grass Dancer* Sioux author Susan Powers references certain spiritual ceremonies such as Hanbleceya (vision quest) and Yuwipi ceremonies. This project will research the different types of spiritual ceremonies, what and who is involved in them, and the significance behind them.
- Rigby, Cathryn '23** 128  
 Faculty Sponsor, Prof. Beverly Army Williams  
***Guardian Angel***  
 My presentation is a program that provides a victim going through a system with a supporter/advocate the minute they talk to a law enforcement all the way through to the end of the trial. By having this I hope to help victims feel more comfortable reporting.
- Robles, Matthew '20, Victoria Longhi '20** 143  
 Faculty Sponsor, Prof. Vanessa Diana  
***The Carlisle Indian Industrial School; The Effects of Forced Assimilation***  
 In the play "The Moon in Two Windows", Kiowa author N. Scott Momaday highlights the trials and tribulations that young Native American children face at the Carlisle Indian Industrial school. Our project will analyze what life was like for these young children as well as the how the football program at Carlisle became so successful.
- Rodriguez, Jeselyn '23** 149  
 Faculty Sponsor, Prof. Beverly Army Williams  
***How Can Teachers Effectively Promote Bodily Autonomy To Young Children In The Classroom?***  
 My goal for this project is to give a lesson plan to teachers that are unsure of how to teach such a sensitive topic to young children. This will ensure that children will learn that their bodies need to be respected, at a young age and give them the confidence to make their own decisions, in regard to their bodies.

- Rohan, Emma '23** 158  
 Faculty Sponsor, Prof. Beverly Army Williams  
***Workshop Assessing the Needs of Children Exposed to Domestic Violence***  
 Approximately 1 in 15 youth, or 6.6 percent, had been exposed to some form of physical assault between their parents, making it critical that future educators understand the warning signs and ways in which to support these children. This project uses research to design a workshop for undergraduate students pursuing a degree in education to teach them the best practices to support students exposed to domestic abuse through their individual healing processes.
- Rua, Emily '23, Nick Hough '22** 8  
 Faculty Sponsor, Prof. Vanessa Diana  
***Native American Connection to Salem Witch Trials***  
 In her novel *Grass Dancer* (1994), Sioux author Susan Powers identifies different types of witchcraft in the Native American culture. This project will describe research on Native American witchcraft and any possible connections to the infamous Salem witch trials.
- Rucks-Smith, Priscilla '21, Lakeisha Lockett '22** 26  
 Faculty Sponsor, Prof. Katja Jylkka  
***What Can Barbauld's Poems Do for Feminism?***  
 We will be talking about how we created a way to understand two of Anna Letitia Barbauld's poems. We shall make side by side translations of her poems and show how it can apply to us today.
- Sanfacon, Chloe '23** 82  
 Faculty Sponsor, Prof. Beverly Army Williams  
***Consent for All: LGBTQ Inclusivity at WSU's Orientation***  
 This project explores how to better incorporate LGBTQ representation in Westfield State's Orientation Sexual Consent Program by constructing a presentation to give to the Orientation Curriculum Director. My project will explain the steps taken to create this presentation, the motivation behind it, and the results of the presentation.
- Sears, Elizabeth '22, Jonah Yeakley '20, William Fairlie '19** 32  
 Faculty Sponsor, Prof. Vanessa Diana  
***Native American Use of Homeopathic Medicine***  
 In her novel *The Grass Dancer* (1994), Standing Rock Sioux author Susan Power establishes homeopathic medicine as an integral part of Native American cultural practices. This project will describe research on plants native to Western Massachusetts and their functions in Native American medicine.
- Seaver, Sean '21** 159  
 Faculty Sponsor, Prof. Vanessa Diana  
***Exploring Yuwipi Spirituality***  
 In the novel *The Grass Dancer* by Sioux author Susan Power a variety of Yuwipi religious ceremonies are performed. This project will explore some of the details of Yuwipi spiritual life and its significance.
- Singh, Maninder '22** 123  
 Faculty Sponsor, Prof. Vanessa Diana  
***Native American Reservations and Conservation***  
 In her novel *The Grass Dancer* (1994), Standing Rock Sioux author Susan Power writes about a character named Reverend Pyke who envisions the U.S. as a land where animals should be bred for food and natural resources such as minerals found in mountains and water from rivers should be used as much as possible. Hence, I want to dig deeper into the minds of Native Americans and see how they view nature in current day and age.

- Spadaro, Samantha '20 and Amanda Haber '20** 126  
 Faculty Sponsor, Prof. Vanessa Diana  
***Abuse of Native American Women***  
 In her novel *The Round House* (2012), Louise Erdrich from the Ojibwe tribe, describes the abuse and violence that many Native American women face throughout their daily lives. This project will describe research on the rates of domestic and sexual violence of Native American women and the jurisdictional relationship between tribal and federal courts that prevent non-native men from being prosecuted. It will also discuss the many efforts and movements to try to fix this matter.
- Stevenson, Aliya '20** 31  
 Faculty Sponsor, Prof. Vanessa Diana  
***The Crisis Behind the Dakota Access Pipeline***  
 In the novel *The Grass Dancer* (1994), Standing Rock Sioux author Susan Power identifies the importance of sustainable land use to the Sioux tribe. The project will outline all the steps taken forward in the input of the 1,172-foot Dakota Access Pipeline that obstructs animal routines, vegetation, and resources that affects thousands of lives today.
- Stewart, Samantha '20** 61  
 Faculty Sponsor, Prof. Vanessa Diana  
***Abuse Against Native Women***  
 In the novel *The Round House*, Ojibwe (Chippewa) author, Louise Erdrich addresses abuse against Indian women and the issues in the court system. This project will highlight the high rates of abuse against Native women, as well as the issues these women face in the court system because of jurisdictional issues between the tribal and non-tribal courts.
- Sullivan, Brandon '21, Adam Hanna '22, Kyle Rourke '22** Oral, 30  
 Faculty Sponsor, Prof. Katja Jylkka  
***Digging up Dracula: Unearthing Hidden Themes***  
 In a podcast format (which will be spoken orally for our presentation), we explore the feminist and sexual themes found in the novel "Dracula".
- Traynor, Madelyn '23** 58  
 Faculty Sponsor, Prof. Vanessa Diana  
***Native American Representation and Stereotypes in Hollywood***  
 In her essay "Native in the Twenty-first Century" (2017) Standing Rock Sioux author, Susan Power writes about the harmful stereotypical portrayals of Native Americans in Hollywood. This project will describe research on how Native Americans are misrepresented and stereotyped throughout the years in film and television in hopes to show the unjust messages they convey and encourage positive portrayals of Native Americans in Hollywood.
- Van Tassel, Spencer '23** 38  
 Faculty Sponsor, Prof. Vanessa Diana  
***Expanding Queer People and Native Culture in High School Literature***  
 In his book of poetry *Nature Poem* (2017), Kumeyaay author Tommy Pico demonstrates that racism and homophobia are still issues in and out of school, due to lack of education. This project will highlight the long standing views on queer people in various Native cultures and advocate for an expansion of queer and Native American representation, particularly in literature, in the public school curriculum.

**Van Tassel, Spencer '23** 40

Faculty Sponsor, Prof. Beverly Army Williams

***Expanding Queer Representation in Public Schools***

At my town high school, East Longmeadow High School, roughly 10% of the student body is queer or questioning; however, there is disproportionately only one openly queer teacher of at least 50 or more teachers. In order to change this, I will present statistics and anecdotes in a letter to Gordon Smith, Superintendent of the district, to urge him to consider pushing for a more diverse staff and curriculum.

**Wallace, Rachel '23** 4

Faculty Sponsor, Prof. Beverly Army Williams

***How is the Criminal Justice System Sexist?***

The purpose of this informational bulletin board is to give victims and criminal justice majors a chance to read about how one can get the help they need after a sexual assault. Also, to inform people about the concerning inconsistencies within the criminal justice system and how we can go about making changes.

**Zackaricz, Summer '21** 17

Faculty Sponsor, Prof. Vanessa Diana

***The Yuwipi Medicine Man***

In the book *The Grass Dancer*(1994), author Susan Power of Standing Rock Sioux wrote about a topic of men who spoke with spirits to do some form of healing, these men were called The Yuwipi Medicine Man. This project will cover the basics of what exactly is a Yuwipi Medicine man, what they do and go over what the Yuwipi ceremony is like when this practiced, such as what goes into it the preparation and what happens during the Yuwipi ceremony.

***Wall of Words Authors***

**Nick Barny, Kaylee Bayersdorfer, David Brazeau, Madison Brodeur, Ariana Chiareza, Lindsey Daniele, Rachel Finney, Don Gauger, Eric Hottin, Cassidy Irzyk, Kaylee Kelleher, Jeammeska Isojo, Nicole Lavoie, Alora Machuca, Courtney McCurry, Shane McGloin, Emi Melendez, Samantha Perusse, Samantha Poutre, Craig Salvador, Kamber Sorel, Eve Soucie, Jay Torres, Sam Traicoff, Hailee Wallace**

Faculty Sponsors, Prof. Michael Filas and Prof. Leah Nielsen

***Ethnic and Gender Studies***

**Traynor, Madelyn '23, Rhenna Barry '23, Lydia Walsh '23** 60

Faculty Sponsor, Prof. Shoba Rajgopal

***Intersectional Feminism***

Our presentation takes a look at the origins of Intersectional Feminism. As well as its importance and representation through the 1st, 2nd, 3rd waves of feminism, as well as the international importance.

***History***

**Howard V, Thomas '19** Oral

Faculty Sponsor, Prof. Erica Morin

***The Legacy of the Northampton New Haven Canal: A Picturesque Project Turned Burdensome Endeavor. What the Public Can Learn from Large Infrastructural Construction***

A case study of both the Northampton New Haven Canal compared to the surveys of the Springfield-Boston metro train. The study compares private infrastructure works vs. state mandated and what we can learn from how infrastructure has evolved over time.

## ***Sociology***

**Tynan, Rachel '21**

**Oral, 44**

Faculty Sponsor, Prof. Tamara Smith

***Inclusive Aging: Determining Needs, Strengths, and Preferences of the Older LGBTQ Population in Westfield MA***

I worked this summer with Dr. Smith to create and run focus groups with LGBTQ community members in Westfield. After hearing directly from this marginalized group, we worked to create a report for the Westfield Council on Aging detailing potential programs directed towards LGBTQ seniors.

## **College of Education, Health and Human Services**

### ***Criminal Justice***

**Goyette, Samantha '20**

**1**

Faculty Sponsor, Prof. Kimberly Tobin

***Perceptions of Race and Crime***

This presentation will highlight the impacts of the course Race and Crime. Specifically changes in students views as a result of the course.

### ***Economics and Business Management***

**Child, Dylan '20, Kiana Clemente '19, Tyler Carothers**

**73**

Faculty Sponsor, Prof. Anthony Furnelli

***The Perceived Health Risks Associated with E-Cig Vaping Among 18-23 Year Olds***

Through a focus group, we investigated the health-risk perceptions among 18-23 year olds. We also evaluated perceptions around nicotine levels, substitute product risks, and the regulating response by government agencies.

**Grande, Aleah '21, Olivia DiNicola '21, Robert Gorham '21, Roshni Sanyasi '21**

**74**

Faculty Sponsor, Prof. Anthony Furnelli

***Online Bill Payments Preferences Among 18 to 24 Year Olds, and What Impacts Their Decisions***

How 18 to 24 year olds are affected by growing technology. We will describe how there are different payments, such as online banking and what affects their decisions in this process.

**Irving, Noah '21, Nathan LaPlante '20, Jaclyn Wood '20**

**78**

Faculty Sponsor, Prof. Anthony Furnelli

***Social Media/News Preferences for 18 to 22 Year Olds***

We are interested in the news/media outlets preferred by college students. We found that Netflix, Hulu, and Twitter were the most popular.

**Kasaras, Katrina '20**

**56**

Faculty Sponsor, Prof. James Schlaffer

***A Regression Analysis of Organic Meat Consumption***

It is a regression analysis looking at meat consumption compared with other dependent and independent variables. These variables include death by heart disease, death by diabetes, income, BMI, etc.

- Marcella, Natale '21, John Marchetti '20, Ryan Murphy '21** 70  
 Faculty Sponsor, Prof. Anthony Furnelli  
***Food Condiment Preferences Among College Students***  
 We are researching college aged students and their condiment preferences. We also focus on how the most popular condiment is advertised.
- Paine, Ethan '21, Austin Withee '20, Gianna Payne '20, Aliya Pinkney** 79  
 Faculty Sponsor, Prof. Anthony Furnelli  
***Non-Alcoholic Pre-Workout Beverage Opinions and Health Risk Perceptions Among 18-24 Year Olds***  
 We measured non-alcoholic pre-workout beverage brand and health risk awareness. We also looked at perceptions of health and performance.
- Pisani, Katherine '20, Brian Rucho '20, Kellie Smillie '21** 2  
 Faculty Sponsor, Prof. Anthony Furnelli  
***Social Media Usage and Preferences of 18 to 22 Year Olds***  
 We are studying the social media usage and preferences of individuals age 18-22. We will be analyzing their preferences on platforms, usage, and time spent online.
- Thompson, Hedvig '20, Rachael Healey '21, Molly Thompson '21, Ross Grasso '20** 76  
 Faculty Sponsor, Prof. Anthony Furnelli  
***Bill Payment Preferences Among 18 to 24 Year Olds and What Impacts Their Decisions***  
 How are 18 to 24 year olds banking habits affected by the growing technology? We will describe how there are different payment methods, such as online banking, and what affects their decisions in this process.
- Movement Science***
- Albano, Gianna '20** 29  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
***The Effects of Occupational Therapy in the NICU for Newborns with Perinatal Strokes***  
 Researches suggests that newborn stroke patients who participate in early occupational therapy are discharged sooner and have overall better physical outcomes. A review of literature shows how early occupational therapy can achieve milestones sooner by increasing motor movement and therefore decreasing the total amount of therapy needed throughout childhood.
- Albano, Sofia '20** 10  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
***A Sensory Integrative Approach in Occupational Therapy Assists Children with Developmental Disabilities.***  
 Children with sensory challenges or poor integration may face challenges in nervous system information processes, impacting self-regulation, motor planning, and skill development. Research suggests that a sensory integrative approach poses benefits for children with developmental disabilities undergoing occupational therapy.

- Bambrick, Patrick '20** 154  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*The Impact of Early Physical Therapy on Inpatient Length of Stay and Opioid Consumption Following Total Knee Arthroplasty*  
 The prevalence of total knee arthroplasties annually is rising and the rehabilitation for these surgeries can be daunting and painful. The available literature examines how implementing physical therapy on the same day following surgery positively effects inpatient length of stay and opioid consumption.
- Bicknell, Brittany '20** 130  
 Faculty Sponsor, Prof. Lynn Pantuosco- Hensch  
*Do Pets Effect Overall Health and Well-Being of Adults?*  
 “Do Pets Effect Overall Health and Well-Being of Adults?” This research is very important because there are so many animal lovers out there who consider their animals their best friends and now there are studies that show why we may be made to think that. It was completed by analyzing and comparing numerous studies on different aspects of how a pet can affect your general health and well-being.
- Brothers, Symantha '20** 97  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*Can Physical Activity Decrease the Effects of Sleep Apnea*  
 Obstructive sleep apnea (OSA) has no known specific method to decrease the symptoms of this condition, but studies have shown that physical activity may lessen the symptoms of OSA by reducing the physical factors contributing to the condition. Educating people who are at risk or have this condition is important because the knowledge gives patients the opportunity for a less invasive treatment.
- Bruffee, Lillian '20** 136  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*Can Exercise Be Used as A Treatment for Anxiety? Exploring the Benefits Exercise offers Symptoms of Anxiety*  
 Utilizing the literature available, research was conducted exploring the relationship between anxiety and moderate exercise, identifying the benefits toward feelings of worry, nervousness and unease. It was determined that exercise offers both acute and long-term benefits, specifically by decreasing muscle tension, improving self-confidence, and reducing stress, all equating to a natural mood boost, reducing symptoms of anxiety.
- Buzzee, Nicole '20** 168  
 Faculty Sponsor, Prof. Pantuosco-Hensch  
*The Compensatory Reserve Index (CRI) Compared to Standard Vital Signs in Early Hemorrhage Detection*  
 Hemorrhage is the leading cause of survivable deaths in the military and civilian populations. This study demonstrates the ability of the Compensatory Reserve Index (CRI) to detect hemorrhage earlier than standard vital signs and detecting hemorrhage early can prompt early intervention, theoretically saving more lives.
- Chapdelaine, Jennifer '20** 93  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*Can Brain Exercises/Games Help Detect Early Memory Loss or Dementia in Those 65 Years and Older?*  
 Brain Training for dementia treatment includes games and exercises designed to challenge the brain. Research suggests that people who do cognitively stimulating activities may have a lower risk of cognitive decline and dementia.



- Coleman, Alison '20** 88  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
***Effects of Incorporating Water-Based Rehabilitation for Post-Stroke Patients***  
 A review of literature on post-stroke rehabilitation shows the many types of exercises that are used in recovery including land-based, water-based, and resistance training. It was suggested that incorporating water-based exercise into rehabilitation for stroke patients has improved overall function and quality of life.
- Conklin, Craig '20** 127  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
***How Participating in Physical Activity in Cancer Patients Affect their Quality of Life***  
 Cancer is currently a tremendous problem that is being faced all around the world, and is researched thoroughly on how patients can live a more active and enjoyable lifestyles. Many studies have been published comparing different lifestyle techniques and exercise programs in order to effectively decrease the likelihood of receiving secondary forms of cancer, while also increasing patient's quality of life.
- Day, Ashley '19** 115  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
***The Effect of Dance Therapy on Dementia Symptoms***  
 Dementia is a progressive neurodegenerative disorder with no known cure that is estimated to impact over 50 million people worldwide. Through a review of literature, it has been established that dance therapy interventions can improve a wide range of dementia symptoms including those of motor, cognitive, emotional, and social variety.
- Dotson, Anton '20** 165  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
***Can Participating in Virtual Reality Training Programs Help Older Adults Improve Their Motor and Cognitive Abilities?***  
 Virtual Reality (VR) technology is a promising new rehabilitation tool that can provide a combination of cognitive and motor training for older adults. VR technology may lead to an increase in fall prevention and an increase in physical activity.
- Doyle, Erin '20** 109  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
***The Effects of Exercise on Physical and Cognitive Function in Alzheimer's Patients***  
 Disease, the 6th leading cause of death in the United States, is a progressive, irreversible disorder that inhibits people's memory and ability to do simple tasks. With current treatments being unsuccessful, this review of literature examines the effects of exercise on physical and cognitive function in those diagnosed with Alzheimer's Disease.
- Doyle, Erin '20** 111  
 Faculty Sponsor, Prof. Amanda Salacinski  
***Effects of 12-Weeks of Water Aerobics on Body Composition in those Affected by Breast Cancer***  
 Long-term survival rates for breast cancer have improved dramatically over the past three decades, translating into a record high number living with breast cancer in need of health promotion and symptom management. This presentation tested the effectiveness of a 12-week water aerobics program on body composition for those affected by breast cancer.

- Flanagan, Logan '20** 166  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*The Impact of Aerobic Exercise on Improving the Quality of Life in Patients with Chronic Obstructive Pulmonary Disease*  
 Chronic Obstructive Pulmonary Disease is a major health problem that causes a rapid decline in lung and heart function. Aerobic exercise as an intervention is a vital part in reducing the risk of developing COPD or decreasing the symptoms if already present; overall improving the quality of life in COPD patients.
- Fluet, Kara '20** 161  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*What are the Effects of Exercise on Academic Engagement in Young Children with Autism?*  
 Autism is a neurological and developmental disorder that ultimately affects how a person acts and interacts with others, communicates, and learns. The effect of exercise on behaviors in children with autism spectrum disorder has been explored regarding academic engagement and has shown successful results.
- Frazier, Alexandra '20** 104  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*How Spinal Immobilization in the Prehospital Setting Affects Patient Outcome in Athletes with Suspected Spinal Cord Injuries*  
 Spinal immobilization with a rigid spine board and cervical collar has long been used in the case of blunt force or penetrating trauma injuries where there is a suspected spinal cord injury. Research over the past decade has shown that immobilization with a rigid spine board may negatively impact patient outcomes and suggest the need to update prehospital protocol.
- Gleason, Stephanie '20** 102  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*How Efficient Prehospital Care Can Improve Outcomes of STEMI Patients?*  
 One of the leading causes of deaths in the United State is caused by a heart attack known as a STEMI. A review of literature shows how pre-hospital care can become more efficient by decreasing the time from onset of symptoms to hospital treatment, as well as, the need for education on early recognition.
- Gott, Nicholas '20** 105  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*Growth Mindset and Rehabilitation in Physical Therapy*  
 Research has backed up the claim that people with a growth mindset are more likely to persevere and complete long-term goals such as rehabilitation. This poster aims to shed light on the benefit of having a growth mindset which is the belief that our traits are not fixed and we are able to accept our flaws and correct them.
- Hegarty, Francis '19** 27  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*Aerobic Exercise and its Effect on Children with ADHD*  
 My research question asks if aerobic exercise can reduce symptoms of ADHD in children. This method could prove to be a great alternative to medication in treating ADHD.

- Hill, Jocelyn '20** 69  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*Effects of Physical Activity on the Long-term Outcome of Pediatric Cancer Patients*  
 Research has shown that physical activity not only increases the responsiveness to treatment, but is integral to quality of life and long-term health for pediatric cancer patients. Exercise during and after treatment reduces the likelihood of the patient developing diabetes, obesity or cardiovascular disease due to sequelae.
- Jankowski, Hannah '20** 145  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*The Impact of Exercise on Fatigue and Performance of ADL's in Patients with Multiple Sclerosis*  
 The most common and tedious symptom that patients with Multiple Sclerosis battle with is fatigue. Research suggests that exercise programs can reduce the symptoms and increase the quality of life overall.
- Kiltonic, Kelsey '20** 112  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*How do Administrations of Higher Intensity and Frequency Extracorporeal Shock Waves Decrease Musculoskeletal Pain?*  
 This research is targeted at alleviating and improving function and prognosis of musculoskeletal disorders which may include, but are not limited to, osteoarthritis, lateral epicondylitis and plantar fasciitis. The administration of extracorporeal shock waves shows significant increases in function and pain of these disorders.
- Kobierski, Robert '20** 90  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*The Relationship of Virtual Reality Exercise on Motivation*  
 Virtual Reality (VR) makes it possible to create a new environment and world that can change the perception patients have about divisibility and injury recovery. A review of literature shows that technology supports health, fitness, and rehabilitation.
- LaCroix, Julia '20** 147  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*The Effects of Exercise and Epilepsy*  
 Often times, people with epilepsy refrain from participating in physical activity out of fear that they will become injured or have a seizure in the process, which results in individuals having deficits in aerobic endurance, flexibility, and muscle strength endurance. After gathering extensive data including questionnaires, standardized tests, exercise programs, and clinical studies, it has been concluded that exercise training and physical activity are beneficial for the epileptic population.
- Matakanski, Kiana '20** 98  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
*The Effects of Nutrition and Physical Activity on Childrens' Behavior*  
 Today, nutrition and physical activity are the two factors that children lack which increases negative outcomes in achieving everyday activities. It is important to have the proper amount of these factors in order to be successful in all aspects of everyday life.

- McCarthy, Liam '20** 84  
 Faculty Sponsor, Prof. Lynn Pantuosuco-Hensch  
***The Effect of Blood Flow Restriction on Muscle Recovery***  
 Blood flow restriction (BFR) research shows how effective BFR is with muscular recovery in the rehabilitation process. Many studies have shown that BFR can increase strength and endurance in muscles faster than without BFR, which can result in athletes returning back to play and patients returning to activities of daily living faster.
- McGinnis, Ryan '20** 94  
 Faculty Sponsor, Prof. Lynn Pantuosuco-Hensch  
***Effects of Exercise/Physical Activity on Individuals with Attention Deficit Hyper-Active Disorder (ADHD)***  
 Several studies illustrate the effects of exercise/ physical activity on individuals diagnosed with Attention deficit hyper-active disorder (ADHD) compared to healthy controls. Research on exercise/physical activity as it coincides with symptoms of ADHD is measured and analyzed through an array of software testing to determine whether staying physically active can increase attentiveness and reduce other symptoms for these individuals.
- McKinnon, Hannah '20** 141  
 Faculty Sponsor, Prof. Lynn Pantuosuco-Hensch  
***The Impact of Video-Modeling on the Development of Social Skills in Children with Autism***  
 Children with autism commonly lack appropriate social skills needed for everyday interactions. Video-modeling is a simple and affordable intervention that was shown to improve targeted social skills and communication in autistic children.
- McNeil, KerryLee '20** 135  
 Faculty Sponsor, Prof. Lynn Pantuosuco-Hensch  
***The Effects of Mirror Therapy on Motor Function in Hemiparesis of Upper Extremity caused by Stroke***  
 Mirror Therapy aids in the reorganization of neural activity in the brain based on the reflection of the unaffected limb taking place of the affected limb. The literature of mirror therapy will show the effects of regaining motor function in a hemiparetic upper extremity caused by a stroke.
- Moriarty, Julianne '20** 114  
 Faculty Sponsor, Prof. Lynn Pantuosuco-Hensch  
***The Relationship Between Exercise and Chemotherapy Side Effects***  
 Chemotherapy presents many harsh side effects such as fatigue, weight loss, decrease in strength and cognitive impairments. The review of literature suggests that incorporating exercise into a patient's treatment program can reduce these side effects and improve overall quality of life.
- Osborne, Gabby '20** 83  
 Faculty Sponsor, Prof. Lynn Pantuosuco-Hensch  
***The Effects of Kangaroo Care used in Conjunction with Traditional Interventions on the Life-Expectancy and Quality of Life of Premature Babies***  
 Research shows positive effects of Kangaroo Care on the life expectancy/life quality of premature infants in combination with traditional interventions. Apart from the benefits of an incubator, Kangaroo Care promotes better sleep, weight acquisition, oxygen circulation, brain development, and regulation of the baby's heart rate, breathing, and body temperature.

- Reynoso-Jimenez, Yatneiry '20** 63  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
***Effectiveness of Constraint-Induced Movement Therapy on Patients Post stroke***  
 Research suggests that Constraint-Induced Movement Therapy improves motor and functional recovery on the affected limb of patients at any stage post stroke, by using the learned non-use approach. A literary review demonstrates how Constraint-Induced Movement Therapy (CIMT) mitigate the motor and functional impairments on stroke patients, at a higher rate compared to other therapies.
- Thompson, Sara '20** 89  
 Faculty Sponsor, Prof. Lynn Pantusco- Hensch  
***The impact of physical activity and exercise programs in women at risk for Gestational Diabetes Mellitus***  
 Exercise can directly affect women's risk for Gestational Diabetes Mellitus during pregnancy. Regular physical activity and aerobic exercise programs have been shown to reduce this risk by regulating glucose levels and insulin resistance.
- Wilkinson, Matthew '19** 107  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
***Mental Health of Veterans; Supporting returning veterans and their mental health.***  
 Many veterans deal with mental illness, the stigma in the military and in general about receiving help for mental illness and types of rehabilitation to help assimilate soldiers back into society. From this research professionals can better understand mental health issues, reduce stigma and provide improved healthcare for veterans.
- Williams, Shacora '20** 124  
 Faculty Sponsor, Prof. Lynn Pantuosco Hensch  
***Plant Based Diets Effect on Cardiovascular Health***  
 Research has shown substantial evidence for improvement of cardiovascular disease with consuming plant based diets. Research studies conducted on Plant based diets have shown improvement of lowering cholesterol, blood sugar and preventing and reversing diseases.
- Wilmot, Megan '20** 91  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
***Types of Treatments that are Beneficial in Treating Hamstring Acute and Chronic Muscle Strains***  
 This presentation tests the effects of a variety of different rehabilitation programs and techniques to subsidize pain along with improve function in the hamstring muscles. Some of the treatments include: eccentric training exercises of the hamstrings, massage therapy, corticosteroid injections, shockwave therapy, plasma-rich platelet injections, trunk or lumbopelvic stabilization techniques, and more.
- Woodworth, Emily '20** 96  
 Faculty Sponsor, Prof. Lynn Pantuosco-Hench  
***How Does Music Effect Alzheimer's Patients?***  
 Alzheimer's disease is the sixth leading cause of death in adults over 60 in America. Research shows patients suffering from Alzheimer's disease were able to remember more while listening to music than they were able to without any music.

**Zepf, Abigail '20** 7  
Faculty Sponsor, Prof. Lynn Pantuosco-Hensch  
***The Effect of Different Exercise Programs on Dementia and Quality of Life***  
The decline of active daily living (ADL) performance can negatively impact mobility and quality of life (QOL). In the review of literature, exercise programs were implemented for elderly living with dementia, showing improved quality of life and suggests the importance of having structured exercise programs for the elderly population living with dementia.

## ***Nursing***

**Houle, Tyler '20** 75  
Faculty Sponsor, Prof. Susan Scott  
***History of Opioids in the United States***  
In light of the current opioid epidemic, I completed research on the history of opioid use and misuse in the US to determine which, if any, historical forces led to the crisis that we find ourselves in today. My research ultimately revealed longstanding trends in health care practice that may have influenced the development of the ongoing opioid epidemic.

## **College of Mathematics and Sciences**

### ***Biology***

**Arthur, Judith '20, Carol Mateo '20** 86  
Faculty Sponsor, Prof. Mao-Lun Weng  
***Role of Horizontal Gene Transfer in Antibiotic Resistance Among Acinetobacter Baumannii Strains.***  
This research is about the bacteria *Acinetobacter baumannii* strains which possesses certain genes that are resistant to some antibiotic drugs. Our goal is to know if horizontal gene transfer plays a role in antibiotic resistance of the bacteria.

**Balek, Dayna '20, Catherine Hotham '20, Karla Contin-Mendoza '21, Lisa Shippee '19** 144  
Faculty Sponsor, Prof. Kristen Porter  
***Isolation and Purification of HB-EGF Protein***  
We transfected epithelial cells with a plasmid for heparin-binding epithelial growth factor to produce and purify the protein. We optimized the ratio of transfection reagent to get a highly purified protein as part of an upstream biologic manufacturing.

**Biseinere, Gabrielle '21, Corinne Donohue '20** 139  
Faculty Sponsor, Prof. Tim Parshall  
***Investigating the Impact of the Hemlock Woolly Adelgid and Elongate Hemlock Scale Across Elevations in Western Massachusetts***  
Our project investigated the presence of the hemlock woolly adelgid and elongate hemlock scale, two invasive insect species, in forests across elevations in western Massachusetts. The overarching goal was to determine whether the woolly adelgid and elongate scale has spread across elevation and caused an increase in mortality of hemlock trees.

**Bonemery, Adam '20, Scott Carcanague '20** 146  
Faculty Sponsor, Prof. Tim Parshall  
***Effects of Non-Native Shrubs on Tick Abundance***  
We are investigating the effect of non-native shrubs on tick abundance. To do this we are collecting ticks along 30-meter transects in forest with non-native shrubs and without non-native shrubs. We are also collecting environmental data including humidity, air temperature, soil temperature, and soil moisture.

- Buckner, Austin '19** **Oral, 45**  
 Faculty Sponsor, Prof. Kristen Porter  
***The Effects of Tattoo Ink on Macrophage Survival and Function during Dermal Wound Healing***  
 The study was done to look deeper into the effects that tattoo ink may have on our immune system. Specifically focusing on how the tattoo ink effects the function and efficiency of macrophages and dermal fibroblasts.
- Campos, Mileny '20, Avia Stanton '19** **51**  
 Faculty Sponsor, Prof. Mao-Lun Weng  
***Antibiotic Resistant Gene Tet Q Identified in Bacteroid Species of B.fragilis Is Used to Compare and Identify Horizontal Gene Transfer***  
 We will be looking at how an antibiotic resistant gene Tet Q was used as a means of comparison to other strains to identify horizontal gene transfer between the gene. We will be using the strain B.fragilis and its phylogeny tree to compare to other strains and their phylogeny trees to see if there was presence of horizontal gene transfer between them
- Deegan, Tanner '20, Julia Urawski '20** **72**  
 Faculty Sponsor, Prof. Tim Parshall  
***Carbon Sequestration in Stanley Park - Aboveground Live Biomass***  
 We are using collected data from Stanley Park in Westfield, MA to compare carbon sequestration in three different types of local forest: mixed hardwood, conifer-dominant, and oak-hickory. All three types of forest can be found growing in Stanley Park and contribute to overall local carbon storage.
- Fitzgerald, Kristen '20, Bridget Lashway '20, Nick Andreucci '20, Conor Hughes '20** **106**  
 Faculty Sponsor, Prof. Ruth Darling  
***The Effect of Light on the Growth of Painted Lady Butterfly (Vanessa cardui) Larvae***  
 We are looking at different factors of butterfly larvae in three groups. Complete darkness, 12 hours of light and 12 hours of dark, 22 hours dark and 2 hours in light. We will be looking at their growth (weight and length), foraging, behavior, time until chrysalis, time in chrysalis to emerging.
- Gomez Gonzales, Glendaliz '20** **Oral, 117**  
 Faculty Sponsor, Prof. Mao-Lun Weng  
***Assembly of the Chloroplast Genome of a Pelargonium Plant***  
 We want to determine the structure of the chloroplast genome of the Pelargonium plant. As the basis of the project, bioinformatics will be used to compare the chloroplast genome of the plant.
- Gomez Gonzales, Glendaliz '20** **119**  
 Faculty Sponsor, Prof. Tim Parshall  
***How Does Generic Variation Influence Fruit and Non-Fruit Trees in our Forest?***  
 I will focus on studying whether there is a significant difference in the amount of genes that exist in fruit and non-fruit trees. Also in how this difference in genes influences the specialization of each of them.
- Grafton, Kelli '19, Zachary Bourque '20, Braun Joseph '19, Scott Carcanague '20** **188**  
 Faculty Sponsor, Prof. Emily Pollina  
***Analysis of Edge Effects on Ash Tree Population***  
 We studied the abundance of ash trees and whether or not there are any edge effects. This was done by comparing the populations in edge plots versus interior plots.

- Hamilton, Cameron '20** **Oral, 121**  
 Faculty Sponsor, Prof. Mao-Lun Weng  
***Spontaneous Mutations in Organelles: Arabidopsis thaliana***  
 A study on spontaneous mutation rates in chloroplasts over 25 generations.
- Hussein, Hibo '19, Leah Moore '20, Paige Pressey '21, Annika Maki '21** **160**  
 Faculty Sponsor, Prof. Emily Pollina  
***Plant Invasive Abundance in Edge Habitat vs Interior Habitat***  
 This study presented evidence that there is more invasive species in the interior habitat than the edge habitat. In contrast with our experimental hypothesis.
- Lewis, Jasmine '20, Melissa Otero '20** **50**  
 Faculty Sponsor, Prof. Mao-Lun Weng  
***Does CPS Require HGT in Streptococcus Pneumoniae***  
 Our presentation touches upon whether or not CPS genes require HGT for the viral infection Strep. Representing our results with a phylogeny tree.
- Lussier, Jocelyn '20, Henry Seo '19, Jordan LePrevost '20** **101**  
 Faculty Sponsor, Prof. Kristen Porter  
***Production of HB-EGF Biologic Protein Using Transfection and Bioprocessing***  
 Our company Stanley Biologics, is a Contract Manufacturing Organization that optimized the production of HB-EGF, a biologic protein. The bioprocessing was done to ensure that it has identity, purity, integrity, and stability.
- Martignetti, Samantha '20, Gillian Pinciario '21** **77**  
 Faculty Sponsor, Prof. Tim Parshall  
***Invertebrate Species Abundance in Coniferous and Deciduous Forests***  
 We focus on identifying what invertebrate species can be found in coniferous and deciduous forests. For this experiment, we measured forest floor properties, pH, and invertebrates communities that were sampled in three different forests.
- Martin, Kaitlyn '19, Kali Sullivan '20, Matthew McMeekin '20** **132**  
 Faculty Sponsor, Prof. Ruth Darling  
***The Effect of Habitat Complexity on Crayfish Foraging Behavior***  
 We are studying the foraging behavior of crayfish based on different habitat complexities. We have many replicates of each complexity, one being low, one being an average and another being high complexity.
- Mire, Abbas '21** **162**  
 Faculty Sponsor, Prof. Tim Parshall  
***Estimating Carbon Storage of Forest Park and Stanley Park***  
 Premise of research is to analyze differences in carbon pools and forest characteristics in two urban forests. Total carbon emissions of Springfield, MA will then be obtained to determine if an urban forest is capable of offsetting a neighboring city's emissions.
- O'Connell, Alissa '19** **65**  
 Faculty Sponsor, Prof. Mao-Lun Weng  
***Sequencing Mitochondrial Genome of Pelargonium Plants with MinION Sequencer***  
 Plant mitochondrial genomes have a massive size variation as well as structural rearrangements; in this study Pelargonium plants were collected and analyzed. A new Nanopore sequencing technique was utilized in the lab in order to sequence the mitochondrial genomes.



- Owusu, Cephas '19, Jaime Martinez '20, Adam Bonemery '20, Ryan Fleury'20, Dominic Ottolini '20** **108**  
 Faculty Sponsor, Prof. Emily Pollina  
***Comparing Edge Effect of Maple Trees and Saplings in the Edge and Interior Habitat***  
 Fragmentation is a very critical problem affecting various biomes, including forests. Our research focused on edge effects, by comparing matured maple trees and saplings in edge and interior habitat.
- Poulin, Shannon '19** **34**  
 Faculty Sponsor, Prof. Robert Thompson  
***Monitoring Cyanobacteria in Lakes in Berkshire County, MA***  
 Cyanobacteria or blue-green algae in recent years has been on the increase because of climate change posing a risk to human and animal health. Using a monitoring program designed by the Environmental Protection Agency, lakes were monitored for algal blooms that can be harmful in large quantities.
- Ricciardi, Victoria '20, Daniel Pavlyuk '20, Rebecca Pereira '20** **92**  
 Faculty Sponsor, Prof. Ruth Darling  
***Foraging Patterns of Cambarus Batchi in Response to Temperature Changes***  
 We will be discussing how varying temperature affect the foraging rate of crayfish.
- Rowe, Suwayna '20** **134**  
 Faculty Sponsor, Prof. Tim Parshall  
***Does the Abundance of Acorns of Affect Squirrel Activity***  
 Acorns are an important food source for many wildlife species such as squirrels. The purpose of this study was to determine if the abundance of acorn production affects squirrel activity. To investigate this, I measured acorn production from oak trees (*Quercus L*) in Westfield State forests near residential buildings, Commuter Lot, South Lot and Stanley Park and observed squirrel activity.
- Shippee, Lisa '19** **133**  
 Faculty Sponsor, Prof. Kimberly Berman  
***THP-1 Derived Macrophages Change Phagocytic Activity and Cytokine Secretion in High Glucose and Palmitic Acid Conditions***  
 THP-1 Derived Macrophages were grown in high saturated fatty acid and high glucose conditions. Differences in phagocytic activity and cytokine production were observed.
- Stanton, Avia '19, Melina Reid '20, Lindsey Finkel '20, Natalie Beaupre '20** **53**  
 Faculty Sponsor, Prof. Kristen Porter  
***Optimizing Transfection of HB-EGF plasmid***  
 The goal of this project is to optimize upstream manufacturing of a pharmaceutical biologic. Heparin Binding Epidermal Growth-like Factor (HB-EGF) will be produced by Good Laboratory Practices (GLP) and current Good Manufacturing Practices (cGMP) and the protein purity, identity, stability, and integrity will be assessed.
- Stanton, Avia '19** **55**  
 Faculty Sponsor, Prof. Kimberly Berman  
***NLRP12-Deficiency Consequences in Tissue Pathology, Inflammation, and Hyperglycemia***  
 The purpose of this study was three-fold: 1. investigate differences in pancreatic islet size from NLRP12-deficient mice 2. optimize immunohistochemistry protocol to assess inflammatory cytokines tissues from NLRP-12-deficient mice and 3. assess phagocytic ability while mimicking hyperglycemic conditions in vitro.

**Swain, Courtney '20, Michael Reynolds '20, Matthew Gaffney '20, Kaitlyn Martin '19** 138  
Faculty Sponsor, Prof. Kristen A. Porter

***Production of Biologic Protein Through Recombinant Protein Expression***

A Pharmaceutical grade biologic protein was produced following GLP/cGMP processes. The optimization of protein production utilized quality control which ensured purity, stability, identity and integrity of the product.

**Vivilecchia, D. Mitchell '20, Yuliya Overchuk '20, Sarena Kenadek '20** 152  
Faculty Sponsor, Prof. Ruth Darling

***Effect of Variable Population Density on Foraging Aggression in the Freshwater Shrimp, *Caridina multidentata****

This presentation will display the results of a study on foraging aggression and intensity in the Amano Shrimp species. Our study is focused on how aggression and intensity change when this communal forager is in groups of different sizes.

**Wolinski, Lauren '20, Vanessa Parmeggiani '20** 103  
Faculty Sponsor, Prof. Tim Parshall

***Forest Succession from Post Agricultural Abandonment***

We plan to compare four areas of land, which at some point in time was/is used for farmland. We hypothesize that the native side of the property line on one of our plots was likely abandoned before the 1970's, and therefore, was able to avoid the competition between native species and invasives.

## ***Chemical and Physical Sciences***

**Collins, Frederick '19** Oral  
Faculty Sponsor, Prof. Roderico Acevedo

***Changing the Specificity Pocket of DHFR to Select NADH as a Cofactor: A Cost Practical Approach***

The molecule tetrahydrofolate (THF) is critical for the synthesis of nucleic acid precursors in all organisms. THF is produced by the enzymatic reduction of dihydrofolate (DHF) using the enzyme dihydrofolate reductase (DHF), and the cofactor Nicotinamide Adenine Dinucleotide Phosphate (NADPH)

## ***Environmental Science***

**Braun, Joseph '19** 85  
Faculty Sponsor, Prof. Micheal Vorwerk

***The Influence of Soil Nutrients and Weather Conditions on Hops (*Humulus lupulus*) Yield in Connecticut***

This research looked into the influence soil nutrients and weather have on the yield of hops in the State of Connecticut. This includes two research farms, in Hamden and Windsor, run by the Connecticut Agricultural Experiment Station.

**Carboneau, Garrett '20, Brandon Hammer '19, Keith Ruby '20** 163  
Faculty Sponsor, Prof. Lauren DiCarlo

***Nutrient Levels of the Water in the Otis Reservoir***

We will be analyzing the levels of Nitrate, Phosphate and Ammonia in the Otis Reservoir looking at how the levels in developed locations compare to undeveloped locations. We will also look to see the effects that lake turnover has on these nutrients.

- Cheremie, Tim '20, Steven Turner '20** **54**  
 Faculty Sponsor, Prof. Tim Parshall  
***Coarse Woody Debris and its Relationship With Forest Age***  
 We analyzed the amount of coarse woody debris from five different locations using two 90 meter transects parallel to each other. To determine the age of the forests we used a tree corer, and a basal area forest stand gauge to analyze forest type.
- Dame, Gabrielle '20, Joanna Arkoette '20** **116**  
 Faculty Sponsor, Prof. Tim Parshall  
***The Relationship Between Human Habitation and Animal Activity***  
 The topic we will be discussing for this project is the effect of human habitation on animal activity. To estimate animal activity we studied eight different sites, where we collected data and observed for an hour twice a week every week over the expansion of three-four weeks.
- Finn-Erb, Leah '20** **140**  
 Faculty Sponsor, Prof. Michael Vorwerk  
***The Recovery Rate of Pheasants on Private and Public Land***  
 The purpose of this study is to look at how the recovery rates differ between private and public clubs and what factors play a role in determining that. I am going to compare the data that we collect from Knightville to the data we collect from Ashfield and see how the recovery rates are different. I am going to use a hunter survey to see how their experiences differ on each type of land.
- Fluckiger, Abigail '20, Hannah LeBeau '21, Daizha Baptiste '21** **99**  
 Faculty Sponsor, Prof. Lauren DiCarlo  
***Promoting Habitat for Pollinators within a Wetland***  
 Wetlands are a crucial part of the environment; while protecting them is often at the forefront of restoration projects, pollinators are an often forgotten element of wetland restoration. This project proposes the restoration of a degraded site in Stanley Park, located in Westfield, MA to provide crucial habitat for pollinators while maintaining the health of the nearby wetland.
- Garrett, Carboneau '20, Chad Hauptman '21, Lisamary Guilbe '20** **129**  
 Faculty Sponsor, Prof. Lauren DiCarlo  
***Restoration of Trout Habitat on the Little River***  
 We are going to increase trout habitat within the Little River at a degraded site. Restoration will include herbicide use, mechanical management, and changing part of the rivers water attributes.
- Grafton, Kelli '19** **36**  
 Faculty Sponsor, Prof. Michael Vorwerk  
***Creating a Management Plan for Westfield State University's Conservation Area***  
 This research has been conducted in order to create an effective and comprehensive plan for managing the new-growth portion of the conservation and research area on campus. It takes into consideration the current biodiversity of this area, as well as planning for the future use as a study area for scientists.
- Gregoire, Connor '20** **80**  
 Faculty Sponsor, Prof. Michael Vorwerk  
***An Analysis of Water Temperature Dynamics in the Otis Reservoir, Otis, MA***  
 In this research, I analyzed the temperature dynamics of the Otis Reservoir during the Fall turnover and lake drawdown. To do this, I deployed automated remote temperature loggers at 4 different sample locations and conducted in-situ measurements over the course of 4 weeks.

- Hale, Natalie '20** 164  
Faculty Sponsor, Prof. Michael Vorwerk  
*Comparison of Algal Concentration for Developed Areas to Non-Developed Areas in the Otis Reservoir, MA*  
The purpose of this project was to compare concentration of algal in developed areas to non-developed areas. We hypothesis that algal concentrations would be higher in developed areas.
- Halpin, Conor '20, Bryant Dana '21, Dan Candido '20** 110  
Faculty Sponsor, Prof. Lauren DiCarlo  
*Post Dam Removal Stream Restoration*  
Observing the Tekoa reservoir after the dam removal. We will present stream quality and necessary restoration practices for reestablishing historical stream flow and bank plant communities.
- Hammer, Brandon '19, Myles Mooney '20, Anna Therien '20** 67  
Faculty Sponsor, Prof. Lauren DiCarlo  
*Restoring a Flood Plain Forest*  
Our project looks at what is needed to take a degraded site and restore it to a functioning healthy ecosystem. Our master plan outlines what is needed to begin this process as well as how to measure success and monitor the site.
- Maytham, Yasmien '20** 157  
Faculty Sponsor, Prof. Michael Vorwerk  
*An Analysis of Climate Change Effects on Seasonal Groundwater Variation and Transpiration in Deciduous and Coniferous Forests*  
In this research, I analyzed groundwater levels in eight different states depending on climate region and forest type. The initial results showed no correlation.
- McColl, Dan '20, Casey Malone '20** 120  
Faculty Sponsor, Prof. Michael Vorwerk  
*The Distribution of Dissolved Oxygen in Otis Reservoir*  
In our project, we analyzed the dissolved oxygen in the Otis Reservoir with the hydro lab and find the total dissolved oxygen mass around the lake at various depths. This is very important to show the water quality of the lake.
- Myles, Mooney '20** 131  
Faculty Sponsor, Prof. Michael Vorwerk  
*An Analysis of Pollinator Preference Between a Pollinator Garden and an Early Successional Habitat in Westfield, MA*  
I studied pollinator preference for different flowering plant species at a pollinator garden next to the Horace Mann Center and an early successional habitat in the Westfield State Environmental and Ecological Research Area. I conducted three tests: timed plant visitation, blue vane traps, and cup traps to find abundance and preference between locations, plant species, and pollinator types.
- Parmeggiani, Vanessa '20, Julianne Griffiths '20, Joseph Davis '20** 148  
Faculty Sponsor, Prof. Tim Parshall  
*Pilot Study of Street Trees in the City of Westfield*  
We are taking an inventory of street trees in the City of Westfield to document their overall structural integrity and species composition. From there, we will be able to manage these trees in order to ensure the safety of the public and provide an aesthetically pleasing view with future management. Future purposes will also include obtaining a monetary value of these street trees for the public using a program called i-Tree.

- Richardson, Gregory '20, Justin Morneau '20** 142  
 Faculty Sponsor, Prof. Tim Parshall  
*How are Invasive Insects Affecting Hemlock Tree Health*  
 We are determining the health of hemlock trees on both campus and Stanley Park and its reasons to explain the differences. Soil texture may be a factor so in 29 forest stands we measured tree health, abundance of EHS and HWA, tree diameter, and soil texture.
- Ruby, Keith '20, Brandon Hammer '19, Garrett Carboneau '20** 153  
 Faculty Sponsor, Prof. Michael Vorwerk  
*An Assessment of Bacteria Levels in Otis Reservoir*  
 My classmates and I set out to test the total amount of bacterial coliforms as well as presence and levels of E.coli. This data will be used to determine if the bacteria levels meet state standards and where on the lake are possible contamination areas.
- Santos, Catelyn '20** 122  
 Faculty Sponsor, Prof. Tim Parshall  
*Is the Littleville Dam affecting pollinator habitat?*  
 Although dams have many uses, they can impact local biological communities. My research compares the habitat surrounding the Littleville reservoir to an area upstream that is unaffected by the dam. By measuring abundance of pollinators, surveying the local flora, and assessing suitable pollinator habitat, my research investigates whether the dam influences pollinators.
- Simpkins, Hanna '20, Ryan Fleury '20, Andrew Mitera '20** 87  
 Faculty Sponsor, Prof. Lauren DiCarlo  
*Restoration of Westfield River Bank*  
 As climate change continues to bring more severe flooding, it is increasingly important to maintain rivers that collect rainfall. This project proposes the restoration of a degraded bank along the Westfield River in Westfield, MA, to provide a stable river bank and prevent erosion in future flooding events.
- Stone, James '20, Nicholas Rigby '20** 113  
 Faculty Sponsor, Prof. Tim Parshall  
*Effective Removal of Celastrus Orbiculatus, Lonicera Maackii, and Ligustrum Vulgare from the Experimental Forest at Westfield State University*  
 The scope of our project is to remove Oriental bittersweet (*Celastrus orbiculatus*), bush honeysuckle (*Lonicera maackii*), and common privet (*Ligustrum vulgare*) from three 15 ft. x 15 ft. plots located inside the Westfield State Experimental Forest. Each plot was treated differently to determine which removal treatment best prevents regrowth: one plot was managed manually by pulling invasives up by the roots, another plot was managed by cutting the roots at ground level, and the last plot was managed by cutting the shrub at ground level and applying herbicide to the cut stem.
- Therien, Anna '20** 41  
 Faculty Sponsor, Prof. Tim Parshall  
*Resource Protection in the Pioneer Valley*  
 The Pioneer Valley has a lot of land protected, but there is currently no easy way to see how towns are doing with the conservation goals that they are setting for themselves in their Open Space and Recreation Plans. The template I have created is a resource that towns and conservation groups can use to quickly access that information.

- Thibodeau, Carly '20, Jack Duncan '22, Cameron Covill '20** 66  
 Faculty Sponsor, Prof. Lauren DiCarlo  
***Experiential Restoration at Mt. Tekoa: Factory to Field Station***  
 The Mt. Tekoa Trail, despite being a popular hiking location for the community of Westfield and the surrounding towns, is not very hiker-friendly: it is not well marked, the trailhead is not easy to find for hikers new to the mountain, and there are no amenities for hikers. This project proposes experiential restoration of the area surrounding the abandoned factory at the base of the trailhead, converting the factory into a recreational field station for hikers and researchers.
- Mathematics***
- Corey, Pooler '20, Ryan Koczela '20** 22  
 Faculty Sponsor, Prof. Karin Vorwerk  
***The Mathematical Mind***  
 We have researched how humans think about mathematics at a young age. We also thought about how this should dictate how we teach mathematics in schools.
- Lamari, Nicholas '22, Nicholas Juliano '20, Zachary Scannell '20, Nathan Martel '20** 57  
 Faculty Sponsor, Prof. Karin Vorwerk  
***Advantageous Budgeting Solutions: Campus Computers***  
 Our group is attempting to develop cost effective PC life-cycle management solutions for college campuses. We are focusing research efforts towards three and five-year plans for Westfield State University's computer layout.
- Longbottom, Kirsten '20, Daniel Blais '20, Ashley Whitaker '20, Teresa Fortier '20** 95  
 Faculty Sponsor, Prof. Karin Vorwerk  
***Guam's Brown Tree Snake Infestation***  
 Invasive Brown Tree Snakes are causing a lot of harm to the infrastructure and the ecosystems in Guam. We are exploring ways to manage the brown snake infestation.
- McDonald, Mia '22, Samantha Donohoe '20, Conner Grady '21, Gabrielle Trudeau '21** 155  
 Faculty Sponsor, Prof. Karin Vorwerk  
***Evil Magic Zombies***  
 We are presenting a model of the spread of zombie infection throughout New England. We are exploring the best plans for containment and eradication of a zombie outbreak.
- Mercier, Erik '20, Matthew DiPoto '20, Jared Mills '21, Ram Giri '21, William Fairlie '20** 125  
 Faculty Sponsor, Prof. Karin Vorwerk  
***Modeling Hardy Kiwi***  
 Hardy kiwi is a super food and a potentially lucrative cash crop for farmers, however, in the wild it grows too fast and is taking over native species. We're modeling the Hardy Kiwi to evaluate the potential threat in Massachusetts.
- Scannell, Zachary '20** 59  
 Faculty Sponsor, Prof. Karin Vorwerk  
***Analysis for Extreme Temperatures in the Northern United States***  
 My poster focuses on northern regions in the United States and analyzing their temperatures to see if any startling environmental trends can be seen. In particular I will be focusing on the deviation of max/min temps. and the ratio of extreme high temperatures to extreme low temperatures.

**Torres-Batista, Edwin '20**

**71**

Faculty Sponsor, Prof. Karin Vorwerk

***Mail Delivery Routes***

This presentation demonstrates the best feasible mail route in the small town of Middle Field.

***Psychology***

**Chapman, Katherine '20**

**Oral**

Faculty Sponsor, Prof. Alex T. Daniel

***The Effects of Anxiety on Attention: An Eye-Tracking Task***

I will discuss my research that I did over the summer with the SSuRF program run by CURCA. I did a correlational study between anxiety and attention using eye-tracking technology, and was able to gain valuable knowledge by going down to Yale University once a week to learn about research with human participants and brain imaging techniques.

**Webster, Allison '21**

**49**

Faculty Sponsor, Prof. Alex T. Daniel

***A Proposal to Examine the Therapeutic Effects of a Canine***

The following proposal will test the effects of canines on human anxiety. I will be exploring if the unpredictability of a dog when the dog is leashed and under supervision versus when the dog is unleashed and walking around freely.