



7th Annual

ACADEMIC AND RESEARCH SYMPOSIUM

April 10, 2017

2:15–6:00 pm	Participant Registration & Folder Pickup	TLEC Main Street
2:40–5:00 pm	Session A: Art Presentations	TLEC Auditorium
2:40–3:40 pm	Session B: Technology Oral Presentations	TLEC 111
2:40–3:40 pm	Session C: Empirical Oral Presentations	TLEC 113
3:50–4:50 pm	Session D: Experiential Oral Presentations	TLEC 111
3:50–4:50 pm	Session E: Empirical Oral Presentations	TLEC 113
5:00–6:00 pm	Session F: Non-empirical and Technology Oral Presentations	TLEC 111
5:00–6:00 pm	Session G: Empirical Oral Presentations	TLEC 113
5:00–6:00 pm	Session H: Poster Presentations	TLEC Main Street

	Oral Presentations Art TLEC Auditorium	Oral Presentations TLEC 111	Oral Presentations TLEC 113	Poster Presentations TLEC Main Street
2:40 PM – 3:40 PM	<i>Art – Session A</i> 1. Aubri Bro (2:40–3:00pm) 2. Jordyn Sturms (3:00–3:20pm) 3. Hannah Willison (3:20–3:40pm)	<i>Technology – Session B</i> 1. Zachary Barz (2:40–2:55pm) 2. Jonathon Anderson (2:55–3:10pm) 3. Javier Moreno (3:10–3:25pm) 4. Kohlton Gabehart (3:25–3:40pm)	<i>Empirical – Session C</i> 1. Lucas Wiechman and Chris Shelton (2:40–2:55pm) 2. Rachel Hoarty (2:55–3:10pm) 3. Matt Keener (3:10–3:25pm) 4. Tyler Nelson and Kendall Schick (3:25–3:40pm)	
3:50 PM – 4:50 PM	<i>Art– Session A</i> 4. Grace Stange (4:00–4:20pm) 5. Taylor Workman (4:20–4:40pm) 6. Jordyne Vanselow (4:40–5:00pm)	<i>Experiential – Session D</i> 1. Samantha Boardman, Alayna Kavanaugh, Kaylyn Beiermann, Kailey Bales, Maria Carabantes, Coleman Cogswell, Le'Dontrae Gooden, Brett James, Kelli Niemeier, Lisa Pope, and Austin Nelson (3:50–4:05pm) 2. Elizabeth Schmidt (4:05–4:20pm) 3. Jordyn Sturms (4:20–4:35pm)	<i>Empirical – Session E</i> 1. Ann Spilker (3:50–4:05pm) 2. Kathie Nguyen, Tyler Miles, and Sabrina Hayter (4:05–4:20pm) 3. Clayton Hintz and Jose Garcia (4:20–4:35pm) 4. Melonie Kotschwar, Rachel Duhachek, and Cameron Christiansen (4:35–4:50pm)	
5:00 PM – 6:00 PM		<i>Non-empirical & Technology – Session F</i> 1. Musa Fofana (5:00–5:15pm) 2. Victoria Woodburn, Austin Taylor, and Matt Keener (5:15–5:30pm) 3. Joel Ristvedt (5:30–5:45pm)	<i>Empirical – Session G</i> 1. Tarence Roby (5:00–5:15pm) 2. Jessica Cox and Charmaine Williams (5:15–5:30pm) 3. Caleb Wehling and Tori Welter (5:30–5:45pm) 4. Cara Colligan and Amanda Ruether (5:45–6:00pm)	<i>Poster Session H</i> 1. Elizabeth Plasek, Justus Thompson, and Christine Lind 2. Chandler Folkerts 3. Philip Yox 4. Rachel Brandt 5. Ryan Gross 6. Kendall Schick 7. Matt Keener 8. Sarah Huhn

Art Presentations – Session A – TLEC Auditorium

2:40 – 3:00

Aubri Bro

Faculty Sponsor: Jim Bockelman

The Value of Being

For my BFA Senior Thesis Show I have analyzed the stories that people tell through the lives that they lead. Using found images and Photoshop to add and subtract information for these images, I instill a story in their mind of what life was like for the person whose manipulated photograph they are viewing. This Photoshopping process allows the viewer to analyze the importance of life and and even get a glimpse at what happens in the absence of life.

3:00 – 3:20

Jordyn Sturms

Faculty Sponsor: Jim Bockelman

Visual Metaphor

My BFA Senior Thesis Art Show is an exploration of relationships through metaphor. My interactions with people, my past and present experiences, and my writing influence my process and my work as an artist. My pieces are a visual representation of my journey as a human, as an artist, as a student, and as a follower of Christ as I interact with the world around me.

3:20 – 3:40

Hannah Willison

Faculty Sponsor: Don Robson

Absence/Presence

A daughter should not have to beg her father for a relationship. Through the use of images of my family without my father, with an added red bloodline" within the imagery, my father's absence is visually heightened. Accompanied with phrases my father has said to me that allude to his absence, the viewer can see the innerworkings of his mind when it comes to family issues. The activity of etching into a piece of plexiglass was equally therapeutic as it was a physically frustrating action, giving the concept further drive as I question my relationship with my father continuously.

4:00 – 4:20

Grace Stange

Faculty Sponsor: Seth Boggs

Economy of Salvation

As an Ecclesiastical Artist I act as an interpreter between the truths of the faith and the community of believers. It is my responsibility to attempt to express the divine to temporal; to take the indescribable and transform it into a visual that is within the grasp of human understanding while keeping the truth within it untainted and without dilution. I embrace the challenge of incorporating the sentiment of traditional ecclesiastical art with the challenge of modern aesthetic to produce a body of work that has both a comfortable familiarity and at the same time a seed of challenge that encourages the viewer to delve deeper.

4:20 – 4:40

Taylor Workman

Faculty Sponsor: Seth Boggs

Aesop's Fables

For my presentation, I will be talking about the work I have created for the BFA Thesis Exhibition. I will be discussing my reasoning behind creating this piece and creative influences I was inspired by. I will also show and discuss previous work created while studying at Concordia that led me to create this piece.

4:40 – 5:00

Jordyne Vanselow

Faculty Sponsor: Jim Bockelman

Sleep Studies

This body of work consists of a series of gesture drawings completed over eleven different nights as the different sleeping positions of the figure are observed. One aim of the work is to provide viewers with the different visual understanding that gesture drawings offer. The subject of the project came about due to a curiosity in the different sleeping positions among different individuals. Several variations of approaches are carried out as the study progresses with different models to better understand the deviation in sleeping patterns among different individuals. Along with the new understanding of different sleeping positions, this work has resulted in an increased understanding of the figure as it pertains to gesture drawing. However, this project has also unexpectedly resulted in the discovery of the social impact and its importance in the development of this body of work.

Technology Oral Presentations – Session B – TLEC 111

2:40 – 2:55

Zachary Barz

Faculty Sponsor: Brian Albright

Epidemiological Models and the Spread of Disease

Because of their prevalence and potentially harmful effects on a population, epidemics are good candidates for study through mathematical models. Math modeling allows us to safely study the progression and transmission of a disease in a population, and it provides the framework for examining potential strategies for controlling the disease.

2:55 – 3:10

Jonathon Anderson

Faculty Sponsor: Brian Albright

Using Simulations to Find Near-Optimal Solutions

Over the years, algorithms based on simulations have been developed to "find" the best solution to a problem, without fully analyzing each individual possible solution. This talk examines a few of these algorithms, and applies them to various artificial and real problems as examples.

3:10 – 3:25

Javier Moreno

Faculty Sponsor: Brian Albright

Two Dimensional Discrete Dynamical Systems

Two Dimensional Discrete Dynamical Systems are useful for simulating the interaction between species. It turns tedious when we observe big values for t , since each population depends on the previous population at $t-1$. Therefore, I developed an application that calculates the n th term without calculating any of the previous values.

3:25 – 3:40

Kohlton Gabehart

Faculty Sponsor: Brian Albright

Living Systems in Equilibrium

In my project, I will determine if two species can coexist in equilibrium. In order to do this, I will set up an appropriate model, plug in the given parameters, and see if there is a solution that does not change over time.

Empirical Oral Presentations – Session C – TLEC 113

2:40 – 2:55

Lucas Wiechman and Chris Shelton

Faculty Sponsor: Kyle Johnson

Lethal effects of synephrine on zebrafish embryos

Synephrine is a common over-the-counter supplement used for weight loss. Its effects on development are not known. Using zebrafish as a model, we sought to determine the concentration of synephrine and synephrine + caffeine that produce lethal effects on zebrafish exposed from 24 to 48 hours post-fertilization.

2:55 – 3:10

Rachel Hoarty

Faculty Sponsor: Sara Brady

The Effects of the Outdoors on a Child's Use of Inappropriate Language: A Case Study

The purpose of this study was to see if there was a correlation between time spent outdoors and the use of swear words by a child on the autism spectrum. Using an ABAB reversal method outdoor time was applied which was intended to decrease the student's swear words.

3:10 – 3:25

Matt Keener

Faculty Sponsor: Sara Brady

The effect of parasympathetic nervous system activation on sociability in introverts

Polyvagal theory, developed by Porges (2001), proposes that a function of the vagal nerve, which regulates the Autonomic Nervous System, is the promotion of positive social behavior. Based on this theory, the current study aims to determine the effect of parasympathetic nervous system activation on sociability in introverts.

3:25 – 3:40

Tyler Nelson and Kendall Schick

Faculty Sponsor: Kyle Johnson

Toxicological Effects of Synephrine on Zebrafish Activity and Locomotion

Synephrine is the active ingredient in certain weight-loss supplements. We examined the effects of vehicle, synephrine, and synephrine + caffeine exposure from 24 - 48 hours post fertilization on zebrafish larvae locomotion at varying concentrations. The effects of these treatments were measured as distance traveled per for 10 minutes using ImageJ.

Experiential Oral Presentations – Session D – TLEC 111

3:50 – 4:05

Samantha Boardman, Alayna Kavanaugh, Kaylyn Beiermann, Kailey Bales, Maria Carabantes, Coleman Cogswell, Le'Dontrae Gooden, Brett James, Kelli Niemeier, Lisa Pope, and Austin Nelson

Faculty Sponsor: Jennifer Janousek

Experiences in Guatemala

Our team of 11 students will share our experiences of going to Guatemala with HHP 489: Global Health on a health and medical mission trip. In class, we learned about important global health issues including health determinants and key areas of disease burden currently affecting the developing world. Over spring break, we got to step out into the real world to experience first-hand issues we have studied in class. Although we went to serve others, perhaps the Guatemalan people ministered to us even more. Not only did we have a faith growing experience serving one another while learning about global health, but we also saw God at work in Guatemala.

4:05 – 4:20

Elizabeth Schmidt

Faculty Sponsor: Thad Warren

Advancing Urban Missions in Delhi, India

Delhi, India is home to 25 million people immersed within a fusion of traditional, modern, and urban life. Unfortunately, Delhi is less than 1% Christian and most residents do not have access to the gospel. This project discusses my six-week experience within India's culture, social problems, ministry in the 10/40 window, as well as how the church can further urban missions throughout the world.

4:20 – 4:35

Jordyn Sturms

Faculty Sponsor: Laurie Zum Hofe

The Creative Process

I use my experiences as an artist to paint with words, just as I use the metaphors of my writing to influence my art. I have personal bridge between the two mediums-one influencing the other, one speaking in times when the other falls short. My visual language and metaphors have infiltrated my life: how I think where I am employed, how I interact with people, how I see the world. My experiences are directly translated into the writing I create.

Empirical Oral Presentations – Session E – TLEC 113

3:50 – 4:05

Ann Spilker

Faculty Sponsor: Joe Gubanyi

Analysis of Barn Owl (*Tyto alba*) Diet and Prey Habitat at Ponca State Park

Barn owl pellets collected from Ponca State Park were dissected to identify and analyze their diet. Land cover types in the area were mapped and analyzed using ArcMap 10.5 to determine likely hunting sites. Barn owl diet and habitat studies are important to understand and conserve this important raptor species.

4:05 – 4:20

Kathie Nguyen, Tyler Miles, and Sabrina Hayter

Faculty Sponsor: Sara Brady

Effects of Phone Location on Sleep Quality

This quasi-experimental study assessed the relationship between phone location with sleep quality, duration, and restlessness among college students living in dormitories. We hypothesized that participants who sleep with their phones outside of their bedroom will report better overall sleep quality than participants who sleep with their phones inside their bedroom.

4:20 – 4:35

Clayton Hintz and Jose Garcia

Faculty Sponsor: Kyle Johnson

The Effects that Synephrine, Synephrine + Caffeine have on development of the head

Synephrine, a chemical found in weight loss supplements, has uncharacterized effects on embryonic development. Using zebrafish embryos exposed from 24-48 hours post fertilization, we examined effects of vehicle, synephrine, and synephrine + caffeine on development of the head.

4:35 – 4:50

Melonie Kotschwar, Rachel Duhachek, and Cameron Christiansen

Faculty Sponsor: Sara Brady

Perception of Student Veterans Issues and Stigma on a College Campus

This experimental study explored students' perception and knowledge about student veterans. Students took a pre/posttest and attended an intervention informing them about either student-veteran issues or tuition. We hypothesized that students in the student-veteran condition would report higher knowledge and attitude scores toward student veterans following the student-veteran intervention.

Non-empirical and Technology Oral Presentations – Session F – TLEC 111

5:00 – 5:15

Musa Fofana

Faculty Sponsor: Erica Lamm

Capstone

This presentation is a capstone project by a Communication Studies major which combines theory, experience, and general significance and relevance of Communication Studies in the real world.

5:15 – 5:30

Victoria Woodburn, Austin Taylor, and Matt Keener

Faculty Sponsor: Twila Fickel

Depression: Today's diagnosis, tomorrow's treatments

Depression is a very real mental illness in our world today. Major depressive disorder affects an estimated 15 million Americans and is a condition that can have other affects on individual's health. Research being done has widened our understanding of depression, its causes and possible treatments.

5:30 – 5:45

Joel Ristvedt

Faculty Sponsor: Brian Albright

Homerun Hopefuls

To determine the likelihood of one team winning from two selected baseball teams, one might look at the teams win-loss record. However, modeling the players and possible situations using a simulation could provide insight into determining which team is statistically most likely to come out on top.

Empirical Oral Presentations – Session G – TLEC 113

5:00 – 5:15

Tarence Roby

Faculty Sponsor: Sara Brady

The correlations between exercise behavior with anxiety, stress, and academic free time

No previous research has separated physical-activity time from free time when exploring how time affects stress and anxiety levels among athletes and non-athletes. The purpose of this correlational study is to determine if there is a correlation between exercise with anxiety, stress, and free time among athlete and non-athlete students.

5:15 – 5:30

Jessica Cox and Charmaine Williams

Faculty Sponsor: Kyle Johnson

Malformations in Zebrafish Exposed to Synephrine and Synephrine + Caffeine

Synephrine is a component of many weight loss products. The effect of synephrine on development of zebrafish is uncharacterized. This study will compare body, tail, and fin development in 4 day post-fertilization zebrafish exposed to the vehicle, synephrine and synephrine + caffeine from 24-48 hours post fertilization.

5:30 – 5:45

Caleb Wehling and Tori Welter

Faculty Sponsor: Kyle Johnson

Effects of Synephrine and Synephrine plus Caffeine on Visual System Development in Zebrafish

This study examined the effects of vehicle, synephrine or synephrine plus caffeine on the development of the zebrafish visual system. Zebrafish eggs were exposed to one of the treatments from 1 - 2 days post fertilization (dpf). Their ability to respond to moving light was then evaluated at 7 dpf.

5:45 – 6:00

Cara Colligan and Amanda Ruether

Faculty Sponsor: Kyle Johnson

Cardiotoxicity and Hepatotoxicity of Zebrafish Larvae Introduced to Synephrine

Synephrine is an over the counter supplement used for weight loss. Various adverse side effects have been noted. Zebrafish larvae were used to study potential morphological abnormalities of the heart and liver induced by synephrine or synephrine.

Poster Presentations – Session H – TLEC Main Street

5:00 – 6:00

Elizabeth Plasek, Justus Thompson, and Christine Lind

Faculty Sponsor: Sara Brady

A Quasi-Experiment Examining the Effect of Professor Location of Residence on Teacher-Student Interpersonal Relationship (TSIR)

Previous research has found that teacher-related factors correlate with teacher-student interpersonal relationship (TSIR). The present study explored the relationship between professor location of residence (in-town vs. out-of-town) and TSIR. The goal of this study was to help universities determine if there is a benefit to hiring in-town versus out-of-town professors.

Chandler Folkerts

Faculty Sponsor: Robert Hermann

A study of the temperature, moisture, pH across a farm in Nebraska using sensors driven by an Arduino microprocessor.

Measurements were taken for temperature, moisture, and pH across a varying stretch of farmland in southeastern Nebraska. These were performed with sensors powered by an Arduino microprocessor. The results are presented geographically and show how these variables relate as well as how the topography and soil type affects them.

Philip Yox

Faculty Sponsor: Robert Hermann

A numerical model of temperature variation across a simple barrier

An interactive model was produced that shows the variation of temperature throughout a simple barrier. Easy Javascript Simulations were used to calculate and graph functions derived from Newton's cooling and the heat flux equation. Results include a variety of situations that help elucidate the heat transfer problem.

Rachel Brandt

Faculty Sponsor: Robert Hermann

Compiling the temperature and moisture profile of the Tamora wetland using an Arduino based microprocessor.

This research employed a moisture and temperature sensor, interfaced with an Arduino microprocessor, to configure a soil profile for the Tamora wetland. The data was compiled through a field study and paired with ArcGIS layers to find the relationship between moisture, temperature, gradient, and elevation.

Ryan Gross

Faculty Sponsor: Robert Hermann

An Simulation of the Dynamics on a Pole Vault

This study analyzes the impact of dynamical variables and conditions on the maximum height achieved in a pole vault. Ejs was used to create a simulation using a physics model. The results are shown for a variety of initial conditions and configurations.

Kendall Schick

Faculty Sponsor: Kyle Johnson

Bring a Big Fish to a Little Pond: A 'DIY' Zebrafish Aquatic Housing System on a Budget

Zebrafish based research is powerful and economical. However low budget research departments, such as Concordia, are limited on throughput and lack adequate aquatic housing facilities (AHF). Our lab has engineered a novel AHF resembling industry standards. Our AHF has continuous water renewal, can house 400-1600 zebrafish, and regulates water temperature.

Matt Keener

Faculty Sponsor: Sara Brady

The Effects of L-theanine, Epi-3-Gallocatechin Gallate (EGCG), and Caffeine on Short-term Memory


Prior research has found three tea compounds enhance certain types of memory (i.e., l-theanine, Epigallocatechin gallate, and caffeine; Schmidt et al., 2014; Tamano et al., 2014). The current experiment investigates whether these compounds affect short-term memory. The results suggest that caffeine has a detrimental effect on short-term memory.

Sarah Huhn

Faculty Sponsor: Vicki Anderson

Subtractive Bilingualism

This research presentation will consider subtractive bilingualism in children in the United States by examining the harm that it causes and the ways in which it may be solved. It will demonstrate that this problem must be addressed to help America's bilingual children.

—  —
**Thank-you all participants, faculty sponsors, staff, judges,
and attendees for making this symposium a success!**

2017 Academic and Research Symposium Committee:

Erin Rowland – Hannah Gillet – Ashton Griess – Rebekah Brassfield – Sam Cleveland

Marcel Hallaert – Vincent Beasley – Megan Suter – Brisco Schaefer

Sponsors: Drs. Sara Brady and Nancy Elwell