

# Celebration of **SCHOLARSHIP**



**THURSDAY, APRIL 16, 2020**

## **Oral Presentation Program**

**IWU'S ANNUAL UNDERGRADUATE RESEARCH CONFERENCE**  
SPONSORED BY THE JOHN WESLEY HONORS COLLEGE



**INDIANA WESLEYAN UNIVERSITY**

# ORAL PRESENTATION SCHEDULE

Presentations begin every 20 minutes. Login information can be found below.

## Zoom Room: Oral Presentations

Join Zoom Meeting

<https://indwes.zoom.us/j/450806223?pwd=eDNVMzZSR1g1VWw5ZSzMmUjc2dEFXdz09>

Meeting ID: 450 806 223

Password: 539629

<b>9:00 am</b>	Madeline Meiers	The Shaken Sense of Self in Iranian Memoirs
<b>9:20 am</b>	Claire Wrobel	Bright Sparrow: A Poetry Collection
<b>9:40 am</b>	Kailey Warner	Like the Sixth Sense but with a Recorder: How I Would Describe my Metafictional Children's Novel
<b>10:00 am</b>	Brillana Temaat	Using Music Therapy Interventions to Increase the Ability of Elementary-School Students with Language-Related Learning Disabilities to Be Educated in the General Education Classroom
<b>10:20 am</b>	Hasasha Hasulube	Jane Austen and Simone de Beauvoir: Becoming a Woman
<b>10:40 am</b>	Kendra Housel	To Hold a Bit of Love in Your Hands: Letter Writing as a Spiritual Practice
<b>11:00 am</b>	Mikaela Visser	Land Control and Violence: Potential Causes of Terror in the West Bank
<b>11:20 am</b>	Emma Merrick	How Much Happiness Can Money Buy?
<b>11:40 am</b>	Kasey Darnell	Balthasar, Mariology, and Gender: A Feminist Analysis
<b>12:00 pm</b>	Kyla Foley	The Golden Key: Child Abuse in George MacDonald's Fairy Tales
<b>Lunch Break</b>		
<b>12:40 pm</b>	Courtney Conn	Ark Christian Ministries Communication Audit
<b>1:00 pm</b>	Yolanda Mast	The Effects of Spiritual Self-Care on Compassion Fatigue in Missionary Nurses
<b>1:20 pm</b>	Kaylan Anderson	The Rise in Cesarean Sections
<b>1:40 pm</b>	Emily Jarrard	Compassion Fatigue in Nursing: Prevalence, Risk Factors, and Effects
<b>2:00 pm</b>	Tyler Cairncross	Zoledronate-Induced Viability Loss: Determination of Rescue Agent Dosages in Human Oral Keratinocytes
<b>2:20 pm</b>	Hope Blanchard	Somatic Embryogenesis and Regeneration of <i>Moringa oleifera</i>
<b>2:40 pm</b>	Rebekah Drew	Subcloning a novel hematopoietic cell kinase mutant for bacterial expression
<b>3:00 pm</b>	Alison Henry	Should Preoperative Fascia Iliaca Block Be Used for Hip Arthroscopic Labral Repair and Femoroacetabular Impingement Treatment? A Prospective Single Blinded Randomized Study
<b>3:20 pm</b>	Cameron Stillson	Away from Narrow Soteriology: Aquinas' Atonement Theology for Evangelicals
<b>3:40 pm</b>	Brooke Carrier	Between Us -- a comic book
<b>4:00 pm</b>	Allison Lumpkin	Design in Context: Revealing the Value of Design through Play
<b>4:20 pm</b>	Alexa Farist	The Body
<b>4:40 pm</b>	Carolyn Anderson	Nurses' Perception of Opioid Dependency
<b>5:00 pm</b>	Matthew Johnson	Modeling Competitive Behavior in Nature

## ORAL PRESENTATION: ABSTRACTS

9.00 AM

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### **The Shaken Sense of Self in Iranian Memoirs**

Madeline Meiers, *Modern Language and literature*

This project examines how moving to America from a very different culture affects the personal identity of immigrants. Since American media has portrayed the Middle East as full of terrorists and “others,” this project focuses on three memoirs from Iranian women to dismantle those prejudices in favor of a more comprehensive understanding of Iran’s people and culture. The aspects of identity evaluated from Firoozeh Dumas’s *Funny in Farsi*, Afschineh Latifi’s *Even After All This Time*, and Jasmin Darznik’s *The Good Daughter* include language, family, other relationships, security, self-portrayal, others’ perceptions, and values. The similarities and differences between the authors are in conversation with the idea of hybridity and intersectionality. While not at the level of immigrants, all of us are made up of contrasting parts in some way or another. Therefore, learning about these Iranians’ stories not only teaches us more about Iranian culture and the unique lives of immigrants, but also about ourselves and how to deal with our own shifting identities.

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9.20 AM

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### **Bright Sparrow: a Poetry Collection**

Claire Wrobel, *Modern Language and Literature*

Like any college student, my life has been a constant battle between learning to grow and thrive when I was tempted to bury my head in the dirt. Over the course of the past four years, I have experimented with many coping mechanisms; some healthy, most not. Eventually I discovered poetry, “an immediate response to trauma,” as one of my professors said, and connected myself to a community of hurt people turning their pain into art and connections. My writing spans the width of my emotional mind—from recovering from sexual assault to mourning the smoggy skies in Beijing, from broken friendships to Chicago snow. My work, entitled “Bright Sparrow,” is an autobiographical work that will never be finished. So long as I am living, I will write.

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9.40 AM

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### **Like The Sixth Sense but with a Recorder: How I Would Describe my Metafiction-al Children's Novel**

Kailey Warner, *Modern Language and Literature*

I will describe my process for writing my metafictional middle grade children’s novel, *Henry*, that deals with themes of grief and loss through five distinct modes of storytelling, incorporating a story-within-story-within-story structure to reveal the complexity of Henry’s grief as he mourns the death of his grandfather. These modes include excerpts from Henry’s writing and entries from his grandpa’s diary, as well as flashbacks from musically-induced metaphysical time-travel. I will talk briefly about the inspiration for this novel, and then I will walk the audience through the narrative timeline, explaining how I plan for the different storylines to overlap at the end of the novel. If you’re interested in magic, slapstick comedy, the Salem Witch Trials, or even storytelling grandpas, then you’ll probably like this book.

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10.00 AM

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**Using Music Therapy Interventions to Increase the Ability of Elementary-School Students with Language-Related Learning Disabilities to Be Educated in the General Education Classroom**

Brillana Temaat, *Music*

This study was conducted to determine the ways that music therapy can be used in the general education classroom to reduce the need for elementary-school students with reading-related learning disabilities to be separated from their peers. A survey was sent out to Board-Certified Music Therapists currently practicing in school settings to determine the types of interventions as well as get ideas of specific interventions that have been found to be successful for individuals with reading-related learning disabilities. The outcome of the survey not only supported the use of interventions that are word-recognition and vocabulary focused, but also resulted in specific examples of interventions that can be used to aid children as they learn to read. This contributes to the development of specific interventions that could be used by a teacher in an elementary-school classroom.

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10.20 AM

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**Jane Austen and Simone de Beauvoir: Becoming a Woman**

Hasasha Hasulube, *Communication & Theatre*

"One is not born, but becomes a woman." This quote is from Simone de Beauvoir, a French phenomenology theorist and feminist from the twentieth century. In her book, *The Second Sex*, de Beauvoir explores how women are shaped by the cultures around them, for better or worse. As I embarked on my senior project, performing as Jane Bennet in *Pride and Prejudice*, I chose this theory to inform my choices. I wanted to explore how Jane was socialized into being a woman in her time, the Regency Era, and how she chose freedom in spite of that. Taking the two women, Simone de Beauvoir and Jane Austen, in hand, I became Jane.

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10.40 AM

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**To Hold a Bit of Love in Your Hands: Letter Writing as a Spiritual Practice**

Kendra Housel, *Theology & Ministry*

In a world of technological advancements and digital communication, the Church of today looks and functions very differently than the early Church. A survey of the way the early Church communicated points to one practice of paramount importance: letter writing. Further research also shows that the way modern Christians view letter writing today is vastly different than what it meant to practice letter writing in the early days of Christian faith. By examining the early Church's emphasis on community that went beyond mere "church gathering," one sees that letter writing has historically played a vital role in how Christians have obeyed the command to love their neighbor as themselves. In response to this is a new understanding of the need for letter writing to continue as a practice in the Church today, and a discussion of the ways letter writing, in a very practical sense, builds and nourishes community and serves as an avenue to actively engage in one's own sanctification.

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11.00 AM

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### **Land Control and Violence: Potential Causes of Terror in the West Bank**

Mikaela Visser, *Social Sciences*

The history of the Israeli and Palestinian tension strains contemporary international memory, especially as it seems that terrorist activity continues to increase throughout the Occupied Palestinian Territories. Swaths of literature seek to determine the causes of terrorism from economic, political, and societal lenses, but specifically within the Israeli-Palestinian conflict, an additional dimension may contribute to the West Bank's violence: land control, specifically with regards to Israeli outpost building in the West Bank. This research uses data analysis to determine how, if at all, Israeli outpost building in the West Bank relates to escalating terrorist activity there. This research suggests outpost building does not have a direct relationship with terrorist activity in the West Bank; however, the variable may affect the Palestinian economy, which does correlate with violence. This research hopes to shed light on the nuanced causes of violence more broadly and also consider more possible specific solutions within the Israeli-Palestinian context with regards to land control and economic development.

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11.20 AM

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### **How Much Happiness Can Money Buy?**

Emma Merrick, *Social Sciences*

How is a person's happiness impacted by their income? Historically researchers have used a concept called utility to understand a person's overall well-being, but in recent years measurements of happiness have become an important factor in understanding quality of life and overall well-being. Exploring when and how income can be used to measure utility is important for researchers who are attempting to understand what constitutes a good reflection of utility, or socio-economic well-being. Some researchers have found that income does increase a person's utility, but to what extent? Overall, my research attempts to better explain the effect of income on happiness.

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11.40 AM

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### **Balthasar, Mariology, and Gender: A Feminist Analysis**

Kasey Darnell, *Theology & Ministry*

Hans Urs von Balthasar's gender essentialism, revealed through much of his theology including his Christology and Mariology, posits questions for many feminist readers about the salvation of women, the position of women in relationship to both God and men, and the position of men in relationship to God. His characterization of femininity as receptivity, particularly evident in his Mariology, presents a problem for feminist theologians. In this paper, I will offer a feminist analysis and critique of Balthasar's Mariology, and I will attempt to determine which parts can be utilized in constructing a Christian feminist Mariology, particularly apart from his vision of gender essentialism.

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12.00 PM

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### **The Golden Key: Child Abuse in George MacDonald's Fairy Tales**

Kyla Foley, *Behavioral Sciences*

The fairy tale works of 19th Century Scottish author George MacDonald hold whimsy, wonder, instruction, and implication both for his era as well as ours. Reflecting his pastoral background, MacDonald's fairy tales give poignant social commentary and inspire readers to learn to see God in minute and even unjust circumstances. MacDonald's fairy tales, and the common themes they carry, offer foundational implications which translate to practical applications for combatting child abuse at both the microlevel and macrolevel through incorporating the power of fantasy into social welfare.

**LUNCH BREAK 12:20-12.40 PM**

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12.40 PM

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### **Ark Christian Ministries Communication Audit**

Courtney Conn, *Communication & Theatre*

Over the spring semester I conducted research with the Ark Christian Ministries in order to learn about their communication tactics. The purpose of this research was to determine the organizations strengths and weaknesses and then provide them with recommendations about how they could improve their communication. The project took more than 120 hours to complete and I applied communication theory and techniques in the data collection.

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1.00 PM

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### **The Effects of Spiritual Self-Care on Compassion Fatigue in Missionary Nurses**

Yolanda Mast, *Nursing*

Research indicates that caring for individuals who have experienced trauma and suffering puts nurses and missionaries at risk for compassion fatigue (CF) as they absorb suffering in the process of relieving others' suffering. Research shows that spiritual self-care can help prevent CF in care professionals. This study explores the impact of spiritual self-care on levels of CF in missionary nurses through the hypothesis: Does spiritual self-care decrease compassion fatigue in missionary nurses?

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1.20 PM

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### **The Rise in Cesarean Sections**

Kaylan Anderson, *Nursing*

Cesarean sections have been on the rises for the past several years. The goal of this research paper is to encourage Certified Nurse Midwives as a means to the reduction of cesarean sections. Certified Nurse Midwives perform noninvasive interventions throughout the birthing process in order to refrain from cesarean sections. Research has illustrated physicians resort to cesarean sections for convenience, financial reasons, or patient request. While cesarean sections are sometimes necessary, the goal is to decrease the rate and to decrease unnecessary risks for mom and infant.

### **Compassion Fatigue in Nursing: Prevalence, Risk Factors, and Effects**

Emily Jarrard, *Nursing*

Compassion fatigue is a significant issue within the field of nursing and can lead to detrimental effects on nurses, their patients, and healthcare facilities as a whole. The Professional Quality of Life Scale (2009) separates the positive and negative effects of healthcare workers' experiences into compassion satisfaction and compassion fatigue (divided into burnout and secondary trauma). The purpose of this study is threefold: (a) to discuss the increasing prevalence of compassion fatigue within the field of nursing, (b) to determine risk factors that can lead to compassion fatigue, and (c) to discuss the effects on nurses emotionally, spiritually, and physically.

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### **Zoledronate-Induced Viability Loss: Determination of Rescue Agent Dosages in Human Oral Keratinocytes**

Tyler Cairncross, *Natural Sciences*

Medication-related osteonecrosis of the jaw (MRONJ) is characterized by an 8-week period of exposed necrotic bone and a lack of soft tissue regeneration in the mouth. This condition can be brought on by treatment with nitrogen-containing bisphosphonates as well as other classes of drugs. Zoledronate (ZOL) is a nitrogen-containing bisphosphonate (N-BP) used to treat post-menopausal osteoporosis and cancers that have metastasized to bone. This study used an MTT cell viability assay in normal human oral keratinocytes (NHOKs) to produce dose-response curves at 48 and 72 hours for ZOL as well as three candidate rescue compounds. Geranylgeraniol (GGOH), known to rescue NHOKs from ZOL-induced death effects in vitro, was tested as well as phosphonoformic acid (PFA), and sodium citrate. The two latter compounds were chosen based on characteristics that are thought to counteract the effects of ZOL. NHOKs were seeded into uncoated 96-well plates for growth to confluence, then treated over a time course of 48 and 72 hours to determine ZOL and rescue agent concentrations for use in future viability rescue assays. At both time points, 50 and 100 microM ZOL caused significant viability loss. The maximal doses of the rescue agents that did not cause significant viability loss at 48 hours were 10 microM GGOH, 0.5 millimolar PFA, and 2 millimolar sodium citrate. In contrast, at 72 hours the following doses significantly reduced viability (each  $p < 0.01$  compared to the respective vehicle control): 1 microM GGOH (85% viability), 0.025 millimolar PFA (83%), and 0.2 millimolar sodium citrate (85%). These dose levels inform successive experiments to determine the relative efficacy of each agent in rescuing from ZOL-induced death in NHOKs.

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### **Somatic Embryogenesis and Regeneration of *Moringa oleifera***

Hope Blanchard, *Natural Sciences*

*Moringa oleifera* is a nutritious perennial native to parts of Africa and Asia that is easily propagated by seed and grafting. It possesses antibacterial and anticancer properties (Saini, Arya, & Singh, 2013). *Moringa* seeds allow for water purification with solar distillation. Previous studies have accomplished micro-propagation (Saini, Shetty, Giridhar, & Ravishankar, 2012). We present a unique form of callus induction and somatic embryogenesis than Devendra, Talluri, & Srinivas, 2012.

Regeneration using tissue culture allows for mass production of plant tissue without having a seed and offers a time efficient alternative to traditional propagation. Attempts at calli formation from leaves and stems has proven successful, however, regeneration occurred through embryos. Induction of calli resulted from exposing plant material to media containing 2,4-Dichlorophenoxyacetic acid (2,4-D). Preliminary results show regeneration of embryos through the transfer of calli to media containing indole-3-acetic acid and kinetin. Calli were incubated in the dark at 25 °C for two to six weeks. The regenerated plants were subsequently exposed to 16-h light incubation at 25 °C for several weeks.

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2.40 PM

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### **Subcloning a novel hematopoietic cell kinase mutant for bacterial expression**

Rebekah Drew, *Natural Sciences*

Nef is an accessory protein of HIV which increases infectivity and promotes pathogenesis. Nef does this by binding with the SH3 domain of hematopoietic cell kinase (Hck), a Src family tyrosine kinase. This complex is a promising target for anti-HIV therapies. Little is known, however, about the mechanism by which the Nef-dependant Hck activation increases HIV infectivity. In order to characterize the Nef-Hck relationship a series of Hck mutants ligation-independent cloning methods were used to insert mutants into a bacterial plasmid for subsequent expression and purification of the targeted kinase. These include K295M, PP, P2A, and Y416F mutations for modifying Hck activity. K295M abrogates Hck activity. PP carries additional prolines in the SH1/SH2 linker of Hck stabilizing the inactive conformation of the kinase. The P2A mutation keeps Hck constantly active through mutation of Hck's polyproline motif. Finally, the Y416F mutation in the activation loop of Hck results in a mutant with little to no enzymatic activity. Insert amplification was successful, as demonstrated by agarose gel electrophoresis, and constructs were successfully transformed into bacteria.

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3.00 PM

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### **Should Preoperative Fascia Iliaca Block Be Used for Hip Arthroscopic Labral Repair and Femoroacetabular Impingement Treatment? A Prospective Single Blinded Randomized Study**

Alison Henry, *Natural Sciences*

Purpose: To evaluate the analgesic effect of preoperative fascia iliaca block on postoperative morphine equivalent dose, pain level, and patient satisfaction for patients electing to undergo primary hip arthroscopic labral repair with osteo- chondroplasty. Methods: This prospective study included 60 patients (fascia iliaca block group: n 1/4 27; control group: n 1/4 33) undergoing elective arthroscopic hip surgery by a single board-certified orthopedic surgeon, fellowship trained in hip arthroscopy. Participants for the study included patients older than 10 years of age and younger than 85 years of age, American Society of Anesthesiologists classifications I to III, diagnosed with symptomatic femoroacetabular impingement, and/or hip labral tear, and/or cartilage damage, and electing to undergo arthroscopic hip surgery. Patients were randomized by surgical date to receive preoperative fascia iliaca block or control (no fascia iliaca block). Preoperative fascia iliaca block was administered by 1 of 4 board certified anesthesiologists using identical anesthetic (35-40 mL ropivacaine 0.35%). Postoperative morphine equivalent dose, self-reported pain level (visual analog scale) and patient satisfaction were measure postoperatively. Results: There were no significant differences between the control group and the fascia iliaca block group in sex, age, height, weight, or body mass index. There was a significant difference between the 2 groups in distribution of American Society of Anesthesiologists classification (p 1/4 .031). There were no significant differences in postoperative morphine equivalent dose for patients receiving fascia iliaca block compared with the control group. There were no



significant differences in self-reported visual analog scale pain and patient satisfaction between the 2 groups at any of the measured time points following surgery. Conclusions: Based on the results of this study, routine preoperative fascia iliaca block for elective hip arthroscopic labral repair and treatment of femoroacetabular impingement is not recommended. Level of Evidence: Level II, prospective single blinded randomized study.

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3.20 PM

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### **Away from Narrow Soteriology: Thomas Aquinas' Atonement Theology for Evangelicals**

Cameron Stillson, *Theology & Ministry*

In the *Summa Theologiae*, Thomas Aquinas presents a multifaceted view of the doctrine of atonement. Overall, he presents Christ's atonement as holistic—both in terms of its cause and its effect; teleological—that is, directed toward the end goal of beholding the beatific vision; and sacramental—lending itself to human participation and the bestowal of grace. Aquinas achieves such a broad view of atonement by employing a variety of theological models, including the widely held Anselmic model of satisfaction, moral exemplarism, ransom, and *Christus Victor*. Rather than simply parroting his theological forerunners, Aquinas adjusts each model to create a more complete view of atonement. This complete view of atonement can prove particularly beneficial for those within the American evangelical movement, which primarily emphasizes the penal substitutionary model of atonement, often at the expense of other useful models. By considering Aquinas's theology of atonement within the *Summa Theologiae*, American evangelicals can move away from narrow soteriology toward a more inclusive, robust theology of atonement.

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3.40 PM

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### **Between Us -- a comic book**

Brooke Carrier, *Art*

I have been working on a comic book which deals with concepts of tragedy and discovery of self. It is action/drama genre and contains violence with guns. I will be showing some of the art and talking about how this story came to life and where it is going.

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4.00 PM

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### **Design in Context: Revealing the Value of Design through Play**

Allison Lumpkin, *Art*

My goal is to create a game which will leverage play as a way to bring individuals into a discussion of the impact which design has had and continues to have on culture at large. I hope that this will begin to break down the existing preconceived notions of design and its role and help to establish its value to those who carry misaligned beliefs and understandings of design's nature. By examining design in context with the culture in which it operates, a more complete and truthful picture of the broader sociological and individually formative nature of design may be brought to the forefront.

## **The Body**

Alexa Farist, *Art*

"The Body" presents a physical representation of Shekinah Glory. Shekinah Glory is the indwelling presence of God. Represented through the porcelain clay seeping into the woman, Shekinah Glory is the tangible, visible manifestation of the Creator. The term Shekinah comes from the Hebrew word *shājan*. Plainly translated, it means "to reside or permanently stay." Though the figure began as a single entity, through the firing process, it has become permanently fastened to the porcelain. There is no separation or distance between the two. As Shekinah Glory physically resides on earth and becomes one with whom it dwells, the pure clay is and will forever be one with "The Body."

## **Nurses' Perception of Opioid Dependency**

Carolyn Anderson, *Nursing*

This research study assesses registered nurses' perception of opioid dependency at Marion General Hospital. A nurse's scope of practice allows them to assess, treat, and reevaluate pain. With the high instances of opioid dependency in rural Indiana and the majority of those addictions beginning with a prescription, nurses hold the power as the first to educate and treat patients' pain. This research study will help Marion General Hospital identify possible strengths and weaknesses in nurses' care of those with opioid dependency. Due to the impact of COVID-19 on the healthcare setting data collection was not possible during this time. Instead we will discuss the significance of this survey, background information, and nursing implications when caring for a patient experiencing opioid use disorder.

## **Modeling Competitive Behavior in Nature**

Matthew Johnson, *Mathematics and CIS*

Competition is when two or more species must compete over a single, finite resource. This causes changes in populations, which can be modeled using what is called a "dynamical system": a system of equations that models change over time. In our research, a modification is made to a two-species competition model first developed by Michael Hassell and Hugh Comins. The properties of the equilibria for this model are explored, and it is proven that  $(0,0)$  is always an unstable equilibrium. Furthermore, some conjectures are made pertaining to this model, based on strong graphical evidence. Part of our first conjecture is then proven. Further research into these conjectures is ongoing.