

# viaticum

ASBURY UNIVERSITY JOURNAL  
OF RESEARCH & SCHOLARSHIP

VOL.  
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2014

## Preparing for the Future

Asbury launches an academic, cross-disciplinary  
collaboration within a Christ-centered framework

### ▸ A Heart for Research

Healing broken hearts  
through scientific research

### ▸ Point of Intersection

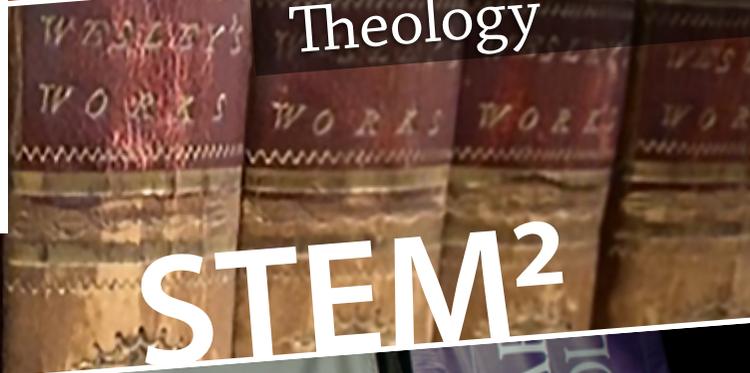
Balancing learning models  
for classrooms of the future

### ▸ Also Featured...

- The new Howard Dayton School of Business
- The Science of Influence



Science



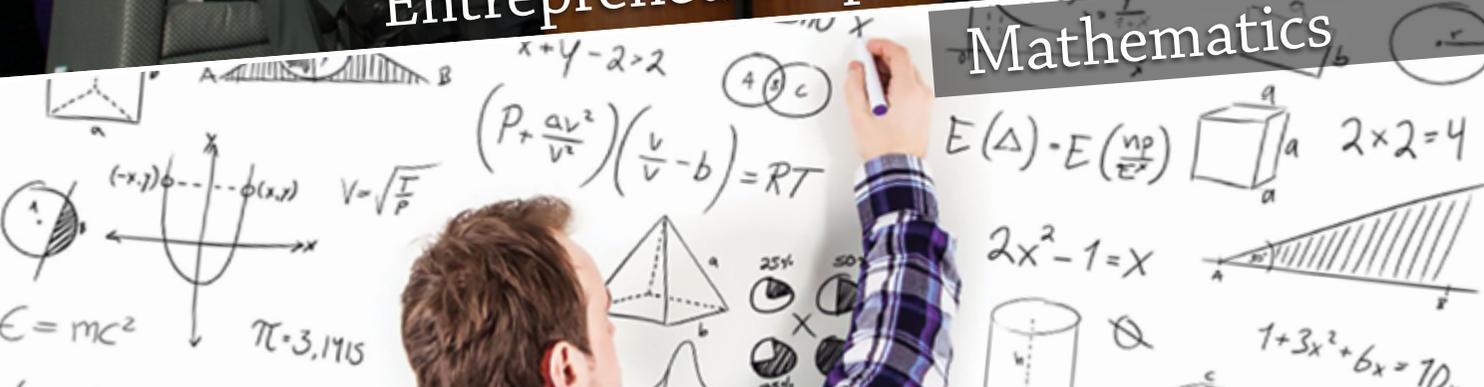
Theology

# STEM<sup>2</sup>



Entrepreneurship & Management

Mathematics



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## MISSION STATEMENT

The mission of Asbury University, as a Christian Liberal Arts University in the Wesleyan-Holiness tradition, is to equip men and women, through a commitment to academic excellence and spiritual vitality, for a lifetime of learning, leadership and service to the professions, society, the family and the Church, thereby preparing them to engage their cultures and advance the cause of Christ around the world. ▸

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If you're interested in learning more about Asbury University or would like more information about any of the features or research in this issue of *Viaticum*, please write to: Office of Marketing & Communications, Asbury University, One Macklem Drive, Wilmore, KY 40390-1198. Or, please also feel free to e-mail us at [marcom@asbury.edu](mailto:marcom@asbury.edu). For general information about Asbury University, please visit our Web site at [asbury.edu](http://asbury.edu).

**vī-'a-ti-kəm** I. n., 1. travelling money, provisions for a journey (in the form of food, money, etc.). 2. (transf.) intellectual or similar resources for the journey of life.

## Prepping for the Future

Research on career trends indicate that by the year 2020, professions related to STEM (Science, Technology, Engineering and Mathematics) are expected to increase on average, between 20-60 percent, while the rest of the job markets will see about a 14 percent increase. With more than 20 percent of all jobs in the U.S. comprised of STEM-related professions — roughly 26 million jobs — many policy makers and educators believe our nation's future economic prosperity is closely linked with student success in the STEM fields.

However, only 45 percent of U.S. high school graduates are ready for college-level math, and just 30 percent for college-level science. The opportunity is greater than our capacity, unless something changes.

The mission of Asbury University calls us to prepare Christ-centered servant leaders for the "professions, society, the family and the Church." To that end, we are preparing for a multi-million-dollar comprehensive initiative, which has as its foundation, our new STEM<sup>2</sup> program plan. The careers that comprise the "usual" STEM-related fields are included in our initiative, but, as you expect, the Asbury University STEM<sup>2</sup> plan goes beyond the "usual". At Asbury, STEM<sup>2</sup> stands for Science, Theology, Entrepreneurship, Management and Mathematics.

The goal of the STEM<sup>2</sup> initiative is not only to enhance our already solid Science, Business and Mathematics academic programs, but also to develop within the STEM<sup>2</sup> majors a culture of cross-disciplinary collaboration and entrepreneurship — all within a Christ-centered framework of theology and ethics. The goal is to develop competent, creative, collaborative, Christian — scientists, entrepreneurs and mathematicians — that engage the culture and advance the cause of Christ around the world. ▸



**Jon S. Kulaga, Ph.D.**  
Provost  
Asbury University



## Creating a Culture of Cross-disciplinary Collaboration

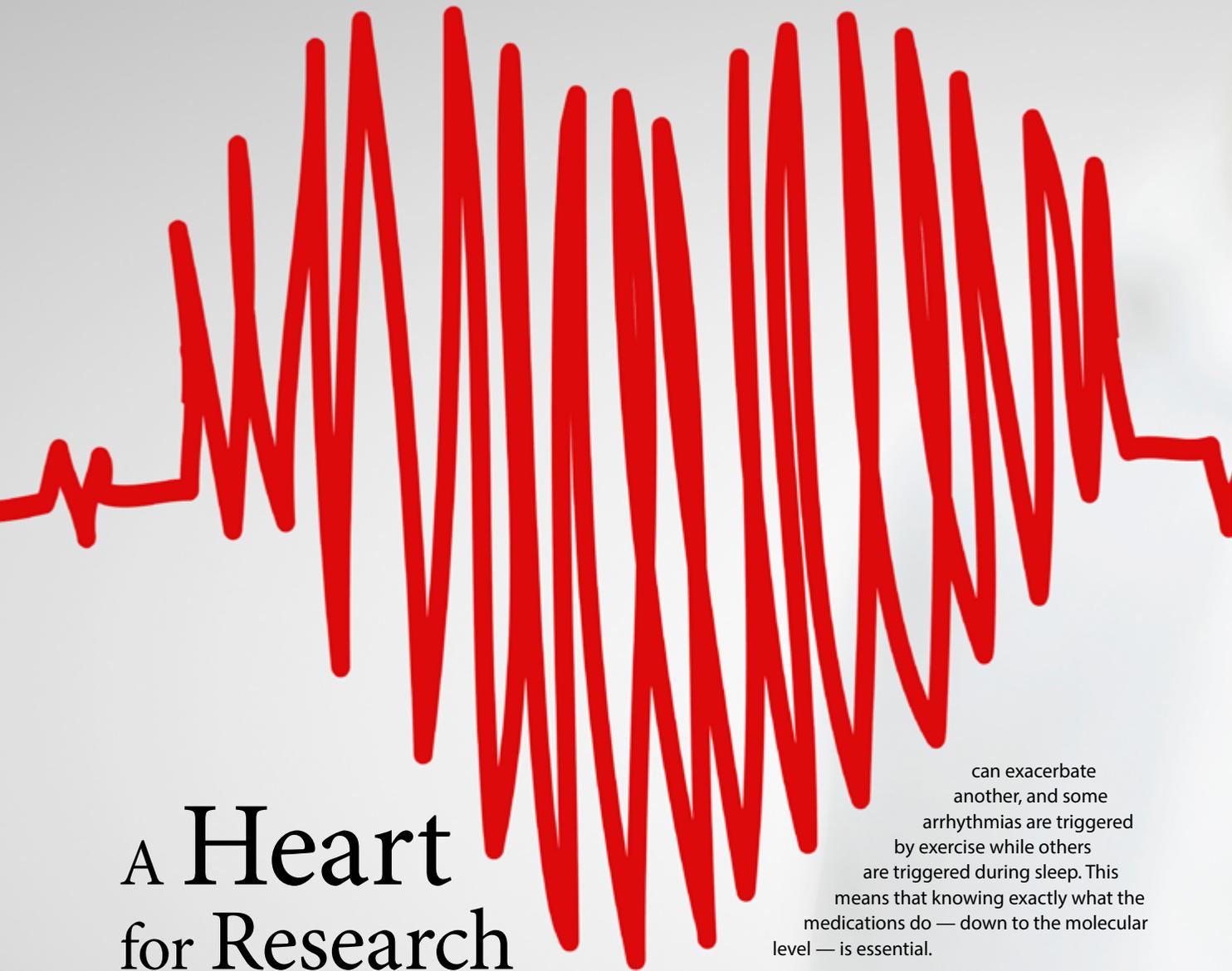
The advances in scientific knowledge and methods, the expansive reach of science and business into our culture, the influence of data analysis in business and education and the stance of modern culture to exclude the mention of a "Creator" from all discussion, requires a response from Christian university's like Asbury. It is imperative that Asbury University provide state-of-the-art facilities, rigorous science and math programs and entrepreneurial-minded business leaders who will equip our graduates for leadership and service — all grounded in a robust scriptural Christian worldview.

Expanding on Asbury's tradition of excellence in math and science — we are seeking to provide richer and more advanced educational experience in the ecological and environmental sciences, teacher training, research and health professions preparation. The opportunities in math education, data mining and math modeling (coupled with a specific application area) are all areas ripe for Asbury graduates to lead and serve. Our natural world needs the caring expertise of Christ-centered scientists in the disciplines of ecological and environmental studies.

Asbury is launching on a new venture — to build one facility that houses not only the Science and Math Departments — but also the Howard Dayton School of Business. Each

of these academic areas will offer excellence in their individual areas, but also work to develop new opportunities for collaboration and cooperation — all informed and fed by our deep theological heritage at Asbury. We anticipate that the Business School will contribute to our environmental program with expertise in the areas of policy, commerce and patent-to-market expertise. In partnership with Asbury University's School of Education, we seek to develop a Center of Science and Math Education for our middle and secondary schools. Computational math majors will find broad application opportunities with other disciplines, including sports management, environmental remediation and sustainability, and political science and economics. In partnership with the Science Department and the Business School, a graduate program in health care administration is on the strategic plan of potential programs.

It is our plan and prayer, that the proposed STEM<sup>2</sup> Collaborative Learning Center will facilitate the development of interdisciplinary programs, produce a new generation of science, math and business leaders, and move Asbury University and her graduates into the national discussions surrounding these key areas of cultural impact and influence. And in so doing, we will honor our mission and advance the Kingdom around the world. ▶



# A Heart for Research

When you look at it from a scientific perspective, Dr. Don Burgess, a professor in Asbury University's Natural Sciences Department, helps to heal broken hearts.

His research, conducted in partnership with scientists and doctors at major research universities and hospitals around the nation, is focused on teasing out the genetic and molecular origins of certain types of syndromes that can cause cardiac arrhythmias. It's a tricky challenge with high stakes: medications that mitigate one type of arrhythmia

can exacerbate another, and some arrhythmias are triggered by exercise while others are triggered during sleep. This means that knowing exactly what the medications do — down to the molecular level — is essential.

Burgess' role in the research is to take the data gathered by physiologists and use computational skills to interpret the data. The interplay of physics, chemistry, biology and mathematics makes coming up with helpful models challenging, but his participation in the research holds benefits for Asbury students, as well as the cardiac patients involved.

"Scholarship is foundational to being a professor," he continued. "My main goal is to challenge students to develop problem-solving skills and to think for themselves. How can I challenge students to solve problems if I am not struggling with my own research problems? Moreover, the research involves the application of physics to biology and is directly related to the courses I teach. For example

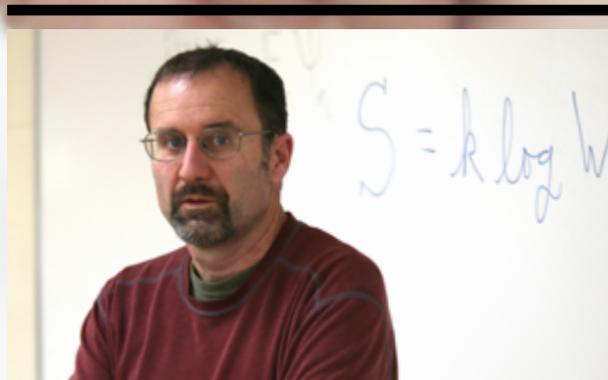


understanding the dynamics of a cardiac myocyte action potential is directly related to the operation of circuits in introductory physics.”

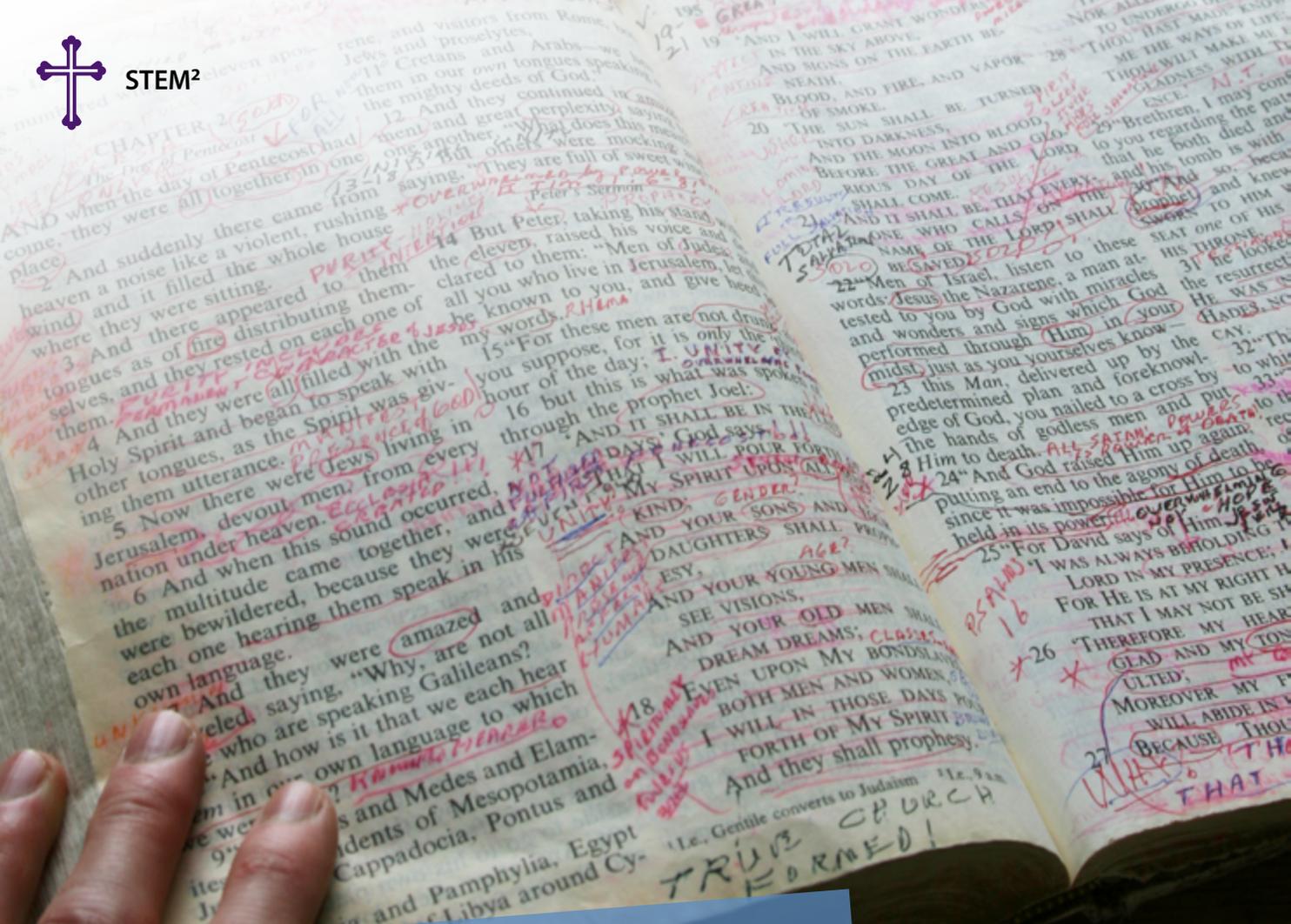
At Asbury, the heart is more likely to be a subject of conversation in the context of theology or perhaps literature, rather than the *Journal of Membrane Biology* or *Biophysical Journal* (two of Burgess’ most recent publishing credits). However, there is a sense in which different conceptions of the heart — the center of intellectual, moral and emotional activity, and the physical organ — all ring true. In the words of Solomon, after all, we are to “above all else, guard your heart, for it is the wellspring of life” (Prov. 4:13).

“I see my research more as a service,” Burgess said. “Scientifically, I’m helping the physiologist understand his work, and it’s being a part of a project that helps improve medicine. Someone with these arrhythmias has a reduced quality of life.

“The research improves my appreciation for medicine, how we’re created, and how remarkable it is that it works. It’s remarkable that a cell works, that the heart can contract. Our health is remarkable.” ▶



**Dr. Don Burgess** embraces the search for truth through the study of physics. He received his doctoral degree from The Ohio State University and bachelor of science from Pennsylvania State University. His research, which has lately focused on cardiac arrhythmias, is generally centered on applying computational techniques to biological systems. Burgess has multiple published articles relating to blood pressure research in the *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology*. His hobbies include working on vintage stereo audio gear.



# Spiritual Truths

This Asbury professor is discovering new truths for his life in scripture and equipping students to do the same.

**Pop quiz:** What's the best way for a professor to research and teach on topics with both academic applications and profoundly personal spiritual ramifications?

**Answer:** Carefully. Very carefully.

From the beginning of his professional academic career, Dr. Kevin Anderson, an associate professor in Asbury University's Christian Studies and Philosophy Department, has balanced intellectual inquiry with a

sensitive awareness of his students' personal experiences concerning the Biblical concepts on which he teaches.

"I am keenly aware of the pastoral implications of what we do in the area of Bible and Theology," Anderson said. "When you're a newly minted Ph.D., you think you're going to change the world and disabuse people of all the bad ideas they hold. Some of that debugging you do have to do, but I try to be careful not to trample on people's cherished beliefs, even when they're misguided. The Lord has to work in their hearts, and these are young people who have to grow

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“I am keenly aware of the pastoral implications of what we do in the area of Bible and Theology.”

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up intellectually and emotionally, too. Sometimes, they need to work through things on their own. Hopefully we can give them the tools to work through different issues, both theological and personally spiritual, as well.”

It’s a role for which he has been prepared by his own experiences. In graduate school, a professor asked him to complete a research assignment that required looking for published material about the resurrection account in Luke and Acts. There wasn’t much to find, and Anderson realized he’d stumbled on a worthwhile dissertation topic. The dissertation, which was eventually published, led to an article in the 2013 edition of “The Dictionary of Jesus and the Gospels.”

Similarly, Anderson was asked to tackle the book of Hebrews for the New Beacon Bible Commentary series and, in the course of his research, was challenged and encouraged by the text’s implications for personal and corporate holiness. For example, the ideas in Chapter 4 of the Sabbath rest in creation and the eschatological rest to come; the providential and fatherly hand of God in Chapter 12; and the intercession of Christ in his high priestly role each speak to the Wesleyan tradition of holiness in different ways.

“In every case I’ve been able to do research that really is personally satisfying and impactful,” Anderson said. “What more important topic could you research in Christianity than the resurrection of Jesus from the dead by the most prodigious author in the New Testament? And even after writing a commentary on Hebrews, there are still so many fascinating questions about this book that I will be able to pursue for the rest of my life.”

In his 12 years at Asbury, the thrill of discovering fresh truth in the Scriptures — and sharing that discovering with



Student responses highlight the relevance of Dr. Kevin Anderson’s research on New Testament topics.

students and the wider world — has yet to wear off.

“I have two chief passions with regard to my academic life,” he said. “One is studying the Scriptures. The other is teaching undergraduate students. The ultimate goal of both of these is to bring others and myself closer to God.”



**Dr. Kevin L. Anderson** is Associate Professor of Bible and Theology at Asbury. He holds an M.Div. from Nazarene Theological Seminary and a Ph.D. in New Testament from London School of Theology, London, England. His publications include “Hebrews: A Commentary in the Wesleyan Tradition”, notes on 1 Corinthians in the Wesley Study Bible, numerous articles, and contributions to the adult Sunday School resource *Illustrated Bible Life*. Dr. Anderson was born and raised in North Dakota and resides in Nicholasville, Ky., with his wife, Sandi.



# A More Faithful Expression

**W**hile it may seem unlikely, to understand the business and economic perspective of Dr. Kevin Brown — assistant professor in Asbury University's Howard Dayton School of Business — it's helpful to first visit the writings of theologian John Wesley.

In his commentary on the parable of the Good Samaritan in Luke 10, Wesley writes,

“Let us renounce that bigotry and party zeal which would contract our hearts into an insensibility for all the human race, but a small number whose sentiments and practices are so much our own, that our love to them is but self love reflected. With an honest openness of mind let us always remember that kindred between man and man, and cultivate that happy instinct whereby, *in the original constitution of our nature, God has strongly bound us to each other*” (italics added).\*

Brown's refusal to separate man's identity as an image bearer of God with his economic activity is at the heart of his teaching and research at Asbury — as well as being central to his personal understanding of faith in the marketplace.

“I teach statistics and econometrics; I teach the scientific method,” Brown said. “I can use that to prove if a program is working. But can I prove love? Can I prove wisdom? Can I prove evil? These are things that are also part of our reality, but there is no tool in the scientists' toolbox that can prove them. Does reality depend on its capacity to be verified, or are there things outside the realm of the disciplines that help us understand reality?”

“The underlying theme is always to think about where business is really good, but test where the boundaries are. Where do we need a new understanding to get at the truth and be more faithful? That should be the goal for all Christians: how can I offer a more faithful expression?”

Brown tracks his understanding of this relationship between business philosophy and Christian belief to something he read several years ago. In 2001, theologian Stanley Hauerwas was named “America’s Best Theologian” by Time Magazine; Hauerwas’ response was that “best” is not a theological concept; faithfulness is. A light bulb went on for Brown as he began mentally sorting through different scenarios in which being faithful sometimes meant following traditional economic patterns, and other times meant doing things in a markedly different way.

Two different research projects have emerged from this understanding. In the first, a writing project with a colleague at St. Andrews University in Scotland, he examines the economics, ethics and theology of social segregation. Generally in the United States, little objection is raised to people sorting themselves into homogeneous groups by race, income, age or any number of factors. Even in discussions about housing, integration is valued for its capacity to create a more fair or efficient arrangement. Brown, however, sees a deeper motivation for integrated social arrangements that reflects the “every tribe, every nation” reality of the Kingdom of God.

In the second, Brown look closely at ethical activity in business and the values to which practitioners typically appeal: efficiency (goal-based activity), equity (activity based in fairness) and enforceability (legal considerations). In most ethical case studies, the “right” answer can be found by appealing to the efficiency, fairness or legality of a particular action. However, Brown explores an ethical framework in which decisions are made based on a Christian’s spiritual identity — with defining features including posture toward God, purity and proximity to other people — before considering his or her actions.

“What we do cannot be divorced from who we are,” Brown said. “Yet few, if any, approaches to ethics begin with consideration of identity. When we do so, we are more adequately equipped to engage the subject of ethics or applied ethics.”

The effects of Brown’s research — not to mention personal business experience, study and devotional reflections

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“Can I prove love?  
Can I prove wisdom?  
Can I prove evil?  
Does reality depend on its  
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or are there things outside  
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— come into the classroom via a commitment to critical thinking in a field that crosses traditional boundaries between disciplines. In the liberal arts, business concepts mastered by students become entry points into a broader discussion about how they may follow Christ more faithfully in a global context.

“At one level you have the basic principles that students need to understand,” Brown said. “But where it really gets exciting is looking at how those apply in the professional world, and the implications of the principles for how we

organize our own lives. It’s the paradox of knowledge — the more I learn, the less I know. It doesn’t mean we can’t know anything, we just realize how complex things are when we get deeper and deeper. That allows me to invite levels of complexity into the classroom with students and show them different ways of thinking about it. I challenge them to think about things now so they will be better prepared for the professional world later.” ▀

\* *Explanatory Notes on the Whole Bible*, by John Wesley



**Dr. Kevin Brown**, originally from Louisville, Ky., spent four years teaching Business at Anderson (Ind.) University. Prior to that, he worked for nearly a decade at Wells Fargo Bank, spending the last four years there as a market president. Brown’s formal education includes an MBA from the University of Indianapolis along with two degrees from institutions in Scotland — an MA of Letters in theology from St. Andrews University and a Ph.D. from the University of Glasgow in Urban Economics and Political Philosophy. He lives in Wilmore with his wife and three children.



Howard Dayton converses with Asbury business students during the School of Business dedication events on March 28.



## **Business God's Way:** Asbury Announces Newest School

In a move that signifies an intention to deepen its influence in the global marketplace, Asbury University has officially introduced the Howard Dayton School of Business. It joins the College of Arts and Sciences, School of Education, School of Communication Arts and School of Graduate and Professional Studies as a significant structural element of the University and its mission to educate men and women for a lifetime of learning, leadership and service to the professions, society, family and the Church.

"The Howard Dayton School of Business is a natural for us in terms of our mission," said Asbury President Sandra C. Gray. "Our mission is all about preparing men and women to make a difference in society, their families, the Church and the world, and there's not any segment of life that business doesn't impact in some way."

Leading the new school is Dr. Michael Kane, a familiar face to many on campus from his time as an instructor at

Asbury. Kane brings with him international experience with for- and non-profit business applications, as well as academic leadership at the University of Kentucky and Asbury Theological Seminary, where he taught Business as Mission, a topic that encapsulates many of his goals for Asbury's School of Business.

"Some might say the marketplace is a dark place, where being a Christian is difficult," Kane said. "I see it as a place to be redeemed by people who see a calling in business and don't have to leave business to be a missionary."

With a thriving tradition of liberal-arts education, Asbury is well suited to provide a cross-disciplinary, creative and academically rigorous

platform from which to address the evolving questions of modern-day business practice. With the official dedication of the Howard Dayton School of Business, Asbury University is expanding its influence and its impact around the world. ▀

I see (the marketplace)  
as a place to be redeemed  
by people who...don't  
have to leave business to  
be a missionary.

— Dr. Michael Kane



37 **Ha** **The Science of Influence** **Ra** 39  
 From the Asbury University Archives and Special Collections

**F**aculty who care about students, engage them in the exploration of their field, inspire them to pursue knowledge and challenge them to achieve their dreams, linger long in the minds of many students.

When Asbury broke ground on a new science building in 1961, but two faculty - Cecil Hamann and Paul Ray '39 - had long since arrived on campus and begun to build a program of excellence in the sciences.

Hamann, unchurched as a boy, gave his heart and life to God at the age of 19. He graduated from Taylor University in 1937 and earned both a Master's and a Ph.D. from Purdue University, majoring in parasitology. He quickly earned a reputation as an outstanding teacher in positions at the University of Kentucky and St. Louis University School of Medicine. Although numerous positions were offered to him, he felt God was calling him to Asbury.

Ray grew up in a strong Christian family, graduated from Asbury and earned a Ph.D. from Syracuse University in Physical and Analytical Chemistry. He achieved significant recognition as a chemical engineer for the military during and after WWII related to atomic powered aircraft, and held several international consulting jobs in the mining industry.

During their years as faculty, both men participated actively in professional opportunities. Hamann was part of the research team at the Oak Ridge Institute of Nuclear Studies

in Tennessee and a visiting professor at the University of Tubingen in Germany. Ray earned distinction as a Director in the National Science Foundation program from 1957 to 1967 and was director of the Regional Moon Watch Station for NASA and a leader in Self Study assessment measures for SACS.

*When Hamann and Ray joined the Asbury faculty, they introduced rigorous and advanced classes, making a vibrant pre-med program a reality.*

When Hamann and Ray joined the Asbury faculty, they introduced rigorous and advanced classes in topics such as bacteriology, parasitology, embryology,

and histology, as well as inorganic and organic chemistry, biochemistry, radioisotope techniques, and instrumental analysis, making a vibrant pre-med program a reality. In fact, the Asbury Alumnus reported in 1952 that 12 percent of the student body were pursuing a major in Science and Mathematics, with graduates being accepted into medical schools in major universities nationwide.

Hamann had a passion for preparing students for the field of medicine, particularly on the mission field; Ray had a passion for preparing students for the field of education so they could make an impact in the classroom. Together they forged a unique approach to changing Asbury's science program in the 1950s, '60s and '70s. Their influence on students was clear; in their first 25 years at Asbury, 130 students completed their M.D. degrees. Thirty or more were serving as doctors on the mission field. ▀







# Point of Intersection

On a mission to bring the perfect balance of learning models into the classrooms of the future.

**F**or Dr. Cheryll Crowe, associate professor of Mathematics at Asbury University, the phrase “practice what you preach” applies as much to math as it does to ministry.

A math teacher who teaches future math teachers, Crowe’s research focuses on a framework for connecting technological, pedagogical and content knowledge (TPACK) to help develop pre-service teachers. In other words, every class is not only an opportunity to teach math to college students, but it’s also modeling creative ways to use technology and sound teaching strategies to do so.

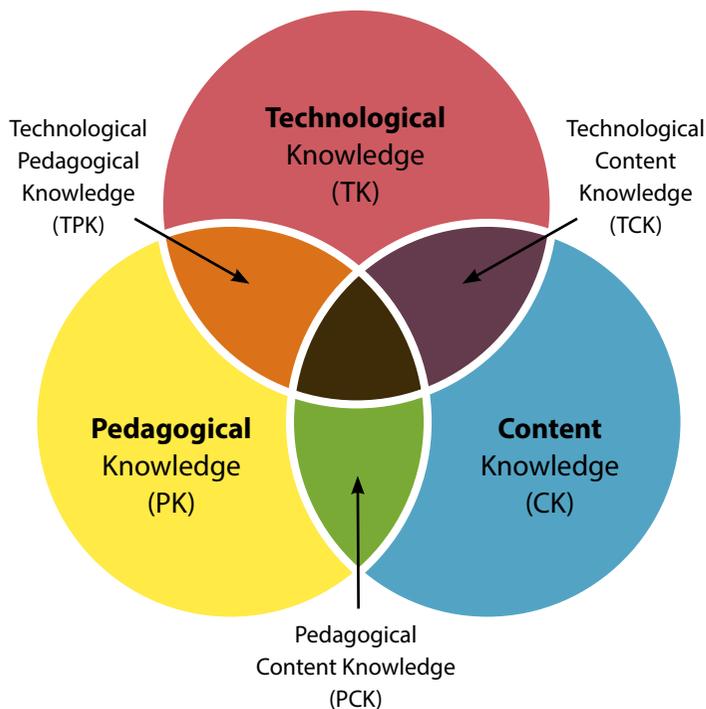
“In one of my classes for pre-service elementary teachers, students learn various methods for teaching addition of whole numbers,” Crowe said. “The students create ‘real-world’ problems (content knowledge), model the problem using hands-on manipulatives while learning strategies to teaching the concepts (pedagogy), and employ software and online applets to guide exploration and deeper understanding of the given topics (technological).”

It’s a teaching method that requires hard work from both professor and students. Gone are the days of preparing a lecture and quietly taking notes; these classes hum with the sounds of small groups building their own apps or working with manipulatives, or small tangible items that help young students understand abstract concepts.

“For the students, the most challenging part is that it’s a really different type of learning for them,” Crowe said. “They have to adjust their thought process. A lot of them have been conditioned that we learn math by taking notes, taking an exam and repeating the cycle. Once they get over the hurdle that it’s different than how they learned, they are very receptive.”

“For me, the challenge in teaching this way is that it’s a lot of work to be able to create a lesson that truly integrates the three components,” Crowe continued. “It’s easy to focus on content, and easy to focus on technology. To bring the three to the intersection point is the most challenging.”

## Technological Pedagogical Content Knowledge (TPACK)

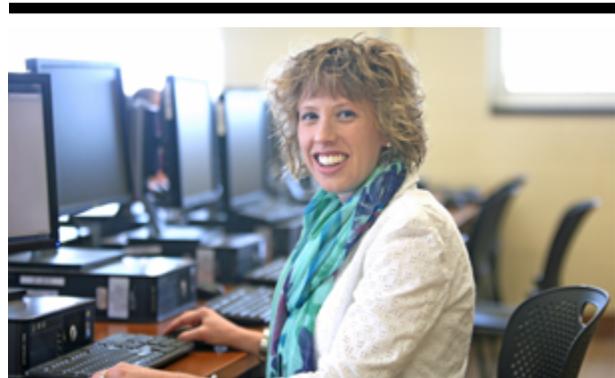


“A lot of [students] have been conditioned that we learn math by taking notes, taking an exam and repeating the cycle. Once they get over the hurdle that it’s different than how they learned, they are very receptive.”

One of the natural applications for research on TPACK is in online learning. Because the principles transfer to any area of study, not just mathematics, Crowe has been working with Asbury’s adult degree-completion program to develop ways in which the human component of education — students’ motivations, frustrations and encouragement — can be managed (pedagogy) for good learning outcomes (content knowledge) in the online environment (technology).

It doesn’t stop there, however. While Crowe has found TPACK research to be professionally engaging and personally applicable, Asbury’s emphasis on spiritual vitality brings an additional element to the TPACK model through Scripture. Whether the topic is units of measure, justice and equity in Ezekiel or the multiplication involved in feeding the 5,000, the Bible is full of examples of ways mathematics impact a life of faith.

“Our Creator is the ultimate mathematician, and it only makes sense that we could know Him better through math,” Crowe said. “We could almost add a fourth circle to the Venn diagram. The concept of infinity is strewn throughout — there are so many evidences in the Word of the topics we talk about.”



**Dr. Cheryll E. Crowe '03** is an Associate Professor of Mathematics. She received her Ph.D. in Education Sciences (Mathematics) from the University of Kentucky in 2008 and taught high school mathematics before transitioning to the collegiate level as a professor in the Department of Mathematics and Statistics at Eastern Kentucky University. Crowe returned to Asbury to teach in 2013. In addition to several publications, she has received two national fellowships in mathematics, presented her work across the United States, and been an invited guest panelist on KET’s *Education Matters*.



**ASBURY UNIVERSITY**  
*Academic Excellence & Spiritual Vitality*

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*Love Divine,  
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**CHARLES WESLEY**  
**FOR THE 21<sup>ST</sup> CENTURY**



**WESLEYAN  
HERITAGE**  
BIENNIAL CONFERENCE

Sept. 24–26, 2014

**WEDNESDAY, SEPT. 24**

10 – 10:45 a.m.

**Chapel** – **Matt Sigler**, Th.D. student, Boston University (Hughes Auditorium)

11:30 a.m. – 12:30 p.m.

**Lunch Talk-Back Session** – **Matt Sigler** (Dougherty Dining Room)

4 – 5 p.m.

**Coffee House Presentation** – **Matt Sigler** (Student Center)

**THURSDAY, SEPT. 25**

11:30 a.m. – 12:30 p.m.

**Faculty Development Luncheon Presentation**  
**Dr. Randy Maddox**, Duke Divinity School (Gray Room)

3:30 – 5 p.m.

**Lecture** – **Dr. Paul Chilcote**, Ashland Theological Seminary  
(Kinlaw Library Board Room)

**FRIDAY, SEPT. 26**

10 – 10:45 a.m.

**Chapel** – **Dr. Lester Ruth**, Duke Divinity School (Hughes Auditorium)

11:30 a.m. – 12:30 p.m.

**Lunch Talk-Back Session** – **Dr. Lester Ruth** (Dougherty Dining Room)

All events held on the Asbury University campus in Wilmore, Ky.

For a complete schedule and other information, visit [asbury.edu/WHC](http://asbury.edu/WHC)