



SITS 2024

# Summer Institute in Teaching Science

20<sup>th</sup> Anniversary Edition

2024

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## 20 Years of Innovation and Impact

by Michael Gray, PhD

Director Emeritus, Summer Institute in Teaching Science



The first SITS (2004) was a ferment of ideas passionately argued—received and evaluated with appropriate

skepticism among the three founders, Bill Lovegrove, Brian Vogt, and Mike Gray. Ideas these three had batted around informally for the previous decade were now put through the fire of logic and evidence in pursuit of a logical framework for optimizing deep learning. J.S. Bach in his *Well-tempered Clavier* set forth a pedagogy for pianists to master all 24 major and minor keys using inventive and captivating preludes and fugues which are beautiful music in their own right. We sought to invent a pedagogy that transcends academic disciplines and engages students in joyful pursuit of deep and durable learning.

We argued that academic specialists must take their own thinking apart as a foundational step before curriculum or teaching approaches can be designed. What emerged that first summer were the first two tools we still use in SITS. The first tool, the

logic wheel, leads a faculty member to clearly articulate the logic of his or her academic discipline starting from motivation and point of view and then articulating the big questions their discipline was invented to answer. The second tool, concept mapping, requires the faculty member to map the major ideas of their discipline in terms of hierarchy and interconnections. A concept map reveals how the thinking of an expert works, what they assume, the facts they must take into account, and—most of all the concepts they invoke in solving problems and answering questions.

With this new clarity about their own thinking, the faculty member is then asked to design the optimal path by which a student will move efficiently toward thinking that is increasingly expert-like. This path advances student understanding by immersion in a “natural critical learning environment” in which they encounter compelling questions they are motivated to answer. Typically, these are real world scenarios the academic

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### Looking Back While Looking Forward: The SITS 20<sup>th</sup> Anniversary Celebration

Find a recap of our special event starting on page 2.

### 20 Years of SITS: FAST FACTS

For those who like numbers, some back-of-the-envelope calculations can be found on page 4.

### New SITS Chemistry: Matthew Bedics

Meet our newest faculty member and SITS participant on page 4.

specialty was created to address. We now call this experiential learning, and it happens throughout the curriculum and not just as a senior year capstone.

This approach to teaching teachers how to teach takes three ten-week summers. This is the heart of SITS. So far, we have been able to transform the pedagogy of about 50 science and engineering faculty. In addition, a concentrated three-week version of SITS called the Excellence in Teaching Initiative (EITI) has trained more than 100 BJU faculty in areas as varied as business, journalism,

music, and theology.

Transformed teachers create innovative courses that challenge and reward student curiosity. Curiosity is the engine of learning. Pedagogy that avoids the extraneous and keeps students engaged in academic and self-discovery recaptures the joy of learning that many left behind in elementary school. It is no exaggeration to say that the transformation of more than 150 faculty has led to the transformative recasting of multiplied hundreds of courses and the growth and transformation of thousands of

students. Multiply this by the 20 years that SITS has been doing this—I think you get the picture!

To God be the glory! Great things He hath done! ♦♦♦

## Looking Back While Looking Forward: The SITS 20<sup>th</sup> Anniversary Celebration

by Derrick Glasco, PhD (Incoming SITS Director)



This summer, outgoing SITS Director Mike Gray treated participants to a semi-autobiographical, captivating four-part series

entitled “How We Got to Now.” Having been a part of SITS for 14 summers, I’d heard plenty of bits and pieces, but never *the whole story*. On the one hand, the SITS origin story is rather simple: *God providentially guided three veteran science professors to see the need for an intensive, evidence-based program for curriculum development, while simultaneously working in the heart of Brian Priest, MD, to pledge an initial \$1M donation to what would later become the Science & Engineering Endowment Fund.* But on the other hand, the SITS origin story is quite nuanced. Details aside, here’s what I found striking: In Mike’s four-part series, SITS (as we know it) didn’t really come up until **part 4!** Many events, experiences and *people* have been instrumental in creating SITS and maintaining it over its first 20 years; therefore, we wanted to make our 20<sup>th</sup> anniversary celebration extra special!



If you’re reading this newsletter, chances are you received an invitation to the event. But in case you missed it, here’s a recap (we’re naming names and posting pictures!):



Our 20<sup>th</sup> Anniversary Celebration was held on **June 13<sup>th</sup>, 2024**, at **The L** in downtown Greenville. Catered by Larkin’s, the buffet-style menu included carved tri-tip of beef

with demi-glace, grilled rosemary chicken breast with wild mushroom reduction, sautéed seasonal vegetables and roasted red-skinned potatoes, creamy Caesar salad, buttered dinner rolls, and blackberry cobbler. (Some people *just have to know!*)



We were honored to have around **65 guests** in attendance. How many do you recognize?



(Past & present SITS participants are in bold.)

Active Faculty & SITS Participants:

Dr. **Tim Anglea**  
 Dr. **Matthew Bedics**  
 Dr. & Mrs. **David Boyd**  
 Mr. & Mrs. **James Collins**  
 Dr. & Mrs. **Jeremiah Deang**  
 Mr. Marlon & Dr. **Rebecca Garcia**  
 Dr. & Mrs. **David Gardenghi**  
 Dr. **Derrick Glasco**  
 Dr. & Mrs. **Michael Gray**

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Dr. & Mrs. **David Kan**  
 Dr. & Mrs. **Jeff King**  
 Dr. & Mrs. **Robert Lee**  
 Dr. & Mrs. **Bill Lovegrove**  
 Dr. **Patrick McGary**  
 Dr. **David McKinney**  
 Dr. **Jessica Minor**  
 Dr. & Mrs. **Rick Mowrey**  
 Dr. & Mrs. **Timothy Tittiris**  
 Dr. **Amy Tuck** & Miss Autumn Tuck (daughter)

Past SITS Participants:

Dr. & Mrs. **Eugene Chaffin**  
 Mr. **Don Congdon**  
 Dr. & Mrs. **Andrew Cropsey**

Retirees, Division of Natural Science:

Dr. & Mrs. **Verne Biddle**  
 Dr. & Mrs. **Tom Coss**  
 Mr. **Lance** & Mrs. **Janet Flower**  
 Dr. & Mrs. **George Matzko**  
 Mr. **Ralph** & Dr. **Margene Ranieri**  
 Dr. & Mrs. **Brian Vogt**  
 Dr. & Mrs. **John Wolsieffer**

BJU Administrators:

Dr. & Mrs. **Josh Crockett** (new BJU President)  
 Drs. **Gary** & **Rebecca Weier**

Other Special Guests:

Mr. **Emmanuel Louisseul** (event photographer)  
 Mr. & Mrs. **Nathan Majewski**  
 Mr. **Chris** & Mrs. **Susan McCarnan**  
 Dr. & Mrs. **Lonnie Polson**  
 Mrs. **Jeannine Rogers**  
 Dr. & Mrs. **Bryan Smith**

**Here's how the event went down:**

Dr. **Mike Gray** (SITS Director) provided a few opening remarks...



Then it was off to the races—I mean, buffet lines!



During the meal, guests were treated to a musical slideshow with as many photos as we could find from the past 20 years! Most were classy and memory-invoking...



...but others? Well, we had to make sure to give a little context!



As a transition to the main program, we enjoyed watching the "original" Science & Engineering Endowment Fund promotional video from 2005.



Two SITS co-founders, Drs. **Bill Lovegrove** and **Brian Vogt**, gave separate remarks reflecting on the history of SITS.



Then began a series of testimonies from a wide range of perspectives:

- Dr. **Jerry Sheys** (early SITS participant)
- Dr. **Gene Chaffin** (early SITS participant)
- Dr. **Timothy Tittiris** (2<sup>nd</sup>-year SITS participant)
- Dr. **David Boyd** (veteran SITS participant)
- Dr. **Tom Coss** (former Biology professor and department head)
- Mrs. **Janet Flower** (former Chemistry professor)
- Dr. **Tiffany (Radle) Roach** (former student)
- An "unforgettable" spoof testimony that's hard to describe... You're just going to have to watch it for yourself [HERE](#).



After the testimonies, Dr. **Mike Gray** provided some entertainment in the form of a "SITS Trivia Quiz."

Sample Trivia Question:

- "Which SITS veteran does this describe?"
- Kindergarten dropout
  - Attended 11 different schools from K – 12<sup>th</sup> grade
  - Once voted "Best Looking Old Man on Campus"

(Answer is at the bottom of page 4.)

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Then began the *coronation* – more like a pinning ceremony – where I (**Derrick Glasco**) was asked to wear my finest lab coat adorned with my science lapel pin collection. Turns out I could only fit about 119 of my 254 pins on the coat, leaving room for two more SITS buttons ceremoniously added by the outgoing Director, Dr. **Mike Gray**.



As my first official act as Incoming Director, I surprised the three SITS founders – Drs. **Mike Gray**, **Bill Lovegrove**, and **Brian Vogt** – with honorary three-legged stools commemorating their service and impact in SITS over the past 20 years.



After reflecting on my time in SITS and sharing a bit of vision for its future, Dr. **Gary Weier** (BJU Executive VP, Chief Academic Officer, and Provost) gave some brief closing remarks, then Dr. **Josh Crockett** (new BJU President) closed in prayer.



Overall, it was a great night, and we hope to see you again in 20 [more] years! ♦♦♦

Select videos of the event can be found at <https://www.youtube.com/playlist?list=PLgx003QXu82C-oxmiBIHBYvr5GStq5WS->.

## 20 YEARS OF SITS: FAST FACTS

**Founded in 2004.**

(Yep, that's 21 years ago, but there was no SITS in 2009. Long story.)

**Over 250 unique sessions** (not repeats!) offered over the years.

**48 different faculty** have participated for a **combined total of 291 summers.**

It takes **3 summers** to complete the **core SITS curriculum.**  
(Yes, we give out diplomas!)

**The average length of SITS participation is 6 years**, including current participants – *but there are a lot of variables at play here!*

There have been **only 3 years** where **SITS had no first-year participants** – 2017, 2020, & 2021.

## Some New SITS Chemistry: Matthew Bedics



**Matthew Bedics** is the newest chemistry faculty member and is responsible for teaching organic chemistry and chemistry for engineers during the upcoming academic year. He earned his B.S. in Chemistry from BJU and then went to SUNY Buffalo to earn a Ph.D. in Medicinal Chemistry. After graduation with his Ph.D., he worked as a process development chemist for nine years in pharmaceuticals and the fine chemicals

industry. During this time, he was responsible for multiple scaleups of processes to pilot plant and plant manufacturing. He recently relocated from Pittsburgh, PA with his wife and two elementary school-aged children.

Matthew is excited for the opportunity to teach students about God's amazing creation, specifically how we can use the concepts of chemistry to understand and utilize creation for His glory. He enjoyed the opportunity to study in SITS this summer and is looking forward to using the principles learned to more effectively teach his classes. He is excited to pay forward what was invested in him both academically and spiritually as a student at BJU, and he is praying that God would use him to impact the next generation of Christian professionals. ♦♦♦

### COMING SOON

We're looking forward to publishing a **biannual** newsletter to better communicate with our donors and supporters. Watch for the **Science & Engineering Endowment Update** in late 2024!

Answer to sample trivia question: **Rick Mowrey**