



SITS 2026

Summer Institute in Teaching Science

Annual Newsletter

2026

Putting It All Together: Highlights from SITS 2026

by **Derrick Glasco**, SITS Director



The 22nd year of SITS—and the 16th for me personally—was a dynamic and productive experience. And while it *technically* wasn't the busiest SITS on record

(that was 2016, see [page 3](#)), it certainly felt that way to me!

Our faculty profile was interesting as well. 15 out of 17 participants were what we call "SITS veterans", having already completed our core curriculum over three summers. So going into SITS 2026, there was one overarching goal: *Challenge and engage these "veterans" with a holistic view of the SITS philosophy while emphasizing two key areas—course design and student engagement.* All of that, of course, while helping train our newest faculty members in Tracks 1 and 2!

The summer kicked off with two jam-packed weeks of sessions led mostly by **Bill Lovegrove** (SITS co-founder and engineering faculty).



Required for both Track 2 and veteran participants, these sessions touched on everything from concept mapping to identifying principles to Socratic questioning. In subsequent weeks, veterans continued to attend many of our Track 2 sessions, providing a good refresher.

At the same time, we welcomed our newest faculty member, **David Mohl**, to SITS as he began Track 1. After enjoying a successful career in systems engineering, he started teaching at BJU in the fall of 2025. With a year of teaching already under his belt, the rollercoaster experience of being a new teacher was fresh in his memory! In Track 1, the emphasis is on clarifying and articulating one's own thinking, and identifying the foundational big ideas and principles that should drive the curriculum in a chosen target course. I didn't ask David for a direct quote on this, but I know he'd agree—the *SITS way of doing this is a very challenging*



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In This Issue

SITS Stats

See the long-term impact of SITS through various facts and figures on [page 3](#).

Cancer, Plasma, and NASA

Eight RIU-supported students engaged in some fantastic research projects this summer. Read all about it on [page 4](#).

In Their Own Words

Hear what this year's SITS participants had to say about their experiences on [page 5](#).

(but rewarding) task, even for experts in their fields!

Putting It All Together

As SITS 2026 approached and the goal of engaging our “veterans” became clear, I centered my approach around this question:

*What is **the optimal** way to design a course, integrating all the ideas and tools we use in SITS?* You might think that with 21 previous years of SITS, such a thing would have been long established, but that’s not the case—and with good reason. We’ve never preached a rigid, step-by-step method for course design and improvement. For sure, there are some non-negotiable elements of good design and foundational tools we’ve developed in SITS.



Three teams of participants take their “final exam” during the last “Declassified” session, working together to decide the best order of events for various tasks in course design.

But there are also discipline-specific nuances and the important principle of academic freedom that would in some ways have to be ignored to mandate an exact step-by-step approach. But as a thought experiment, I asked: *Could SITSy course design ever be reduced to a mere template?* Anyone who has been in SITS would tell you the answer is laughably, “No way!” But after being assigned a brand-new course (Foundations of Biological Investigation, or FBI), the perfect opportunity to give it a try was right in front of me. So, beginning in SITS 2025, I started with a blank slate and designed my FBI course with laser-focused intentionality and purpose,

trying to discover the most *optimal* approach, if such a thing existed. And during week 4 of SITS 2026, I shared my results in a series of sessions entitled, “Declassified: How I Designed an FBI Course.”

In preparation for the “Declassified” sessions, I designed a series of four concept maps representing four (somewhat) distinct phases

...as a thought experiment, I asked:
“Could SITSy course design ever be reduced to a mere template?”

of SITSy course design. We discussed one of these maps during each session, integrating some examples from my FBI course along the way. The sessions were well received. One participant remarked:

“I thought these sessions were very valuable. The main value, as I saw it, was being able to see the whole of SITS applied to a single course in very short order.”

And personally, I found our discussions to be incredibly insightful. It was clear that while there are endless ways to design a “bad” (teacher-centered) course, there are still multiple paths to design a “good” (learner-centered) course. And the SITS model builds and protects that central scaffold upon which these flexible iterations can be successfully employed.

Emphasizing Student Engagement

Another highlight of SITS 2026 was our series of demonstrations on active learning. Working in pairs, participants were given information on **78** different learning activities. These ranged from active preparation strategies (for students) to in-class activities to assignments aiding student metacognition. Participants were then asked to teach an actual class period from one of their courses to their SITS colleagues, incorporating **3** new active learning techniques, **1** of which included before-class preparation. And there was a twist.



While most “student” colleagues were sent a reading assignment and expected to prepare for class, a subset purposely *were not*. There were two goals for this: 1) To help these “students” experience the effects of unpreparedness in an active learning environment, and 2) Through detailed survey results, help instructors gauge whether their learning activities required or rewarded preparedness.

Active learning is by no means a new concept or even new to SITS. But ask any SITSian and they will tell you: Effectively engaging students is much easier said than done.

There is no one-size-fits-all approach and it can be challenging to establish and sustain an effective routine. Furthermore, born out of misconceptions about how real learning occurs, some students are even *actively* resistant to it...at least at first! We can all use more practice and more ideas in this area, and we’ll continue to have variations of this in the future. As one participant noted:

“Super helpful and engaging. Asking us to do something out of our comfort zone and new is what SITS ought to be all about!”

Our Latest “Graduate”

To round out SITS 2026, we were happy to celebrate the “graduation” of **Matthew Bedics**, chemistry faculty, from our core SITS curriculum (Tracks 1–3). In future summers, Matt will be eligible to enroll in Lab Track or Custom Track as he continues the perpetual task of course design and revision, and professional development. Congratulations, Matt! ♦♦♦



Celebrating SITS With Facts and Figures

by **Derrick Glasco**, SITS Director

I'm a total spreadsheet nerd. I love finding and analyzing data, and preserving bits of history (especially family history). So naturally, I've spent a considerable amount of time and effort tracking the history of SITS, just for fun. Along the way, I've compiled some (hopefully) interesting facts and figures worth sharing. Enjoy!

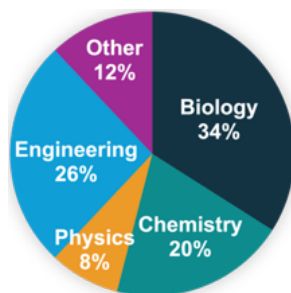


The Big Picture

Years Offered	22
Total Number of Participants (All Time)	50

Faculty Participants

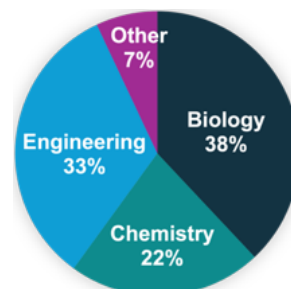
Primary Field:



Average # of Years in SITS (Natural Sciences)	7.25
Number of "Faculty Summers" in SITS	328

Target Courses (past 5 years)

Types of Courses Improved During SITS:



Total Number of Courses Improved (Lecture or Lab)	59
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Professional Development Sessions**

Total Number of Sessions Offered	>1,102
Median Number of Sessions Per Year	64
Sessions Required to Complete Tracks 1 – 3	116
Most Sessions Offered in One Summer (2016)	100
Session Titles Used Only Once	>50%
Continuing Education Units (CEUs) Earned by Participants (since 2013)	826.3

**Doesn't include the first three years of SITS (2004-2007), where surviving records are sparse. You'll see a ">" symbol before those values.

Top 3 Instructors**

(by hours of sessions taught)



Mike Gray (SITS co-founder)

>425 hours



Bill Lovegrove (SITS co-founder)

>192 hours



Bryan Smith (Worldview sessions)

>165 hours

Worldview Emphasis**

Total Hours of Worldview Sessions	>256
Number of Unique Speakers	29
Number of Unique Fields of Expertise (Speakers)	16

Just for Fun**

Number of SITS Activities with Food	>179
Participants with the First or Middle Name " David " (All Time)	9
Average Number of Dauids Per Year	3-5

As I reflect on the facts and figures above (*ignoring the very last table!*), the long-term impact of SITS is clear and obvious. Over the past 22 years, the vast majority of faculty members in the Division of Natural Science have participated in SITS, usually for many summers. It would be hard to find more than a few courses that have never been targeted for improvement or redesign at some point during SITS.

The substantial amount of time and opportunity that SITS has provided faculty members to interact, perfect their crafts, and engage in highly intentional course design cannot be understated.

And finally, the SITS curriculum has been (and continues to be) deep and wide. Notice, for example, that >50% of session titles appear in the records only *once*...ever. Whether those sessions underwent major or minor changes—or scrapped altogether—it's a neat indicator that the SITS curriculum is by no means stagnant. As a 16-year SITS veteran and current Director, I can absolutely confirm that is the case!

To all SITS supporters, **thank you!** It is a driving force behind the rigorous, up-to-date, and biblically faithful science education we continue to provide to our students. ♦ ♦ ♦

Research Immersion for Undergraduates

Updates from Biology, Physics, and Engineering

Biology RIU

Director: **Rebecca Garcia**



This year's Biology RIU continued our longstanding focus on cancer research. We were able to support four students—**Michael Abdo**,

Chung-yan Lok, **Lydiann Lopez-Murillo**, and **Marco Rodriguez-Roman**—for an eight-week immersive research experience. Their goal for this summer was to develop a qPCR-based assay for breast cancer.

A key biomarker in breast cancer is a protein called HER2. Whether a specific patient's cells express the HER2 protein can help determine treatment options. Interestingly, even though pathologists have multiple detection methods at their disposal, none of them are highly reliable. Why? Cells only produce HER2 at low levels (it's a signaling receptor), and many detection methods just aren't sensitive enough to reliably pick it up. With this need in mind, our RIU students took on the challenge of designing a *sensitive and accurate assay*.

diagnostic laboratory. By the end of their eight weeks, the basic framework for a qPCR-based HER2 assay was in place. They saw some promising results but have also identified aspects of the assay that future students can focus on improving.

Here are a few things this year's RIU students had to say as they headed out the door for their (much shorter) summer break:

"Most people think, 'Why don't they come up with something to cure cancer?' but it's not that easy to design. Research helps the next generation know what not to do or what works."

"I have a new appreciation of diagnostic testing!"

"Research is a tedious process and is underappreciated."

~ 2026 RIU student ~

"It's easy to see that a doctor looks at me as a patient and takes a sample but there are a lot of steps and work that goes into getting reliable methods that help make the diagnosis. A lot of people [were] involved in that work..." ♦♦♦

synthesis efforts aimed at growth of defects in diamond for quantum technologies, using recipes developed in part during previous computational physics research projects. A presentation is planned for the American



Physical Society meeting next Spring. Austin assisted in moving the equipment from the Auto Shop into the Science Main building, where it can be used more effectively. ♦♦♦

Physics RIU

update from **Nick Gothard**



This year's Physics RIU continues an interdisciplinary project aimed at developing materials using a microwave plasma chemical vapor

deposition system (MPCVD) on loan from the Air Force Research Laboratory. Building upon last summer in which a Computer Science student developed a Python-based control system, this year's project featured Physics major **Austin Bovay** configuring the MPCVD for spectral analysis of plasma composition under specific gas flow, vacuum, and microwave conditions. Austin also performed substantial literature and project research that led to the purchase of a suitable spectrometer for the project. Austin hopes that detailed analysis of the chemical species present in the plasma will inform future

Engineering RIU

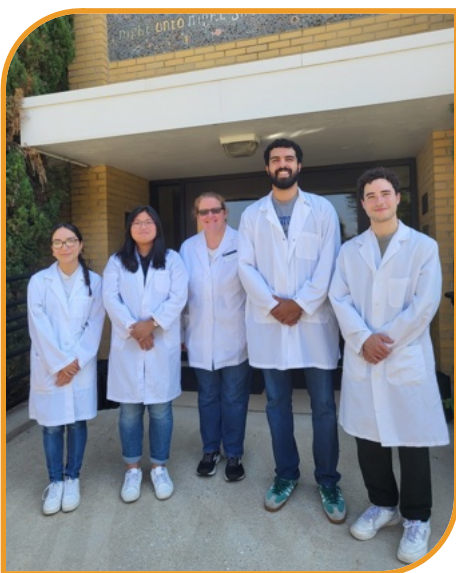
update from **Jeff King**



The Engineering RIU this year was focused on the CubeSat Mission Concept and its required documentation. Three engineering students, **Charisse McGonigal**

(senior), **Jonas Barker** (junior), and **Matt Huebscher** (sophomore), spent four weeks combing through all the CubeSat Team documents and messages to develop and document a cohesive Mission Concepts Document for the first required external review called the Mission Concept Review (MCR) or Merit Review. Any satellite requesting to be launched by NASA under the CubeSat Launch Initiative must first conduct a

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Many technical details aside—Our students had an enjoyable summer, gaining new skills while experiencing the normal ups and downs of research. They even toured a local

Merit Review and then a Feasibility Review. The MCR is the first major milestone for the BJU CubeSat Team toward getting a launch slot and eventual satellite on orbit. The Merit Review was sent out to the external reviewers at the end of June and all reports received back so far are positive. There are still some areas to work on, but the diligence and attention to detail by the group was evident to the reviewers.

Additionally, the RIU team drafted a comprehensive Systems Engineering Management Plan (SEMP) to describe and delineate all the processes required to ensure that the spacecraft will be



built correctly and fully documented. Revision 1 of the SEMP is currently almost 50 pages and will continue to grow as we add more details. It includes description of organization, processes, and documentation templates for major milestones as well as a formal Deliverables Binder to house all documentation. While we are still a few years away from a satellite on orbit, their hard work this summer will be a great platform for others on the team to build on. ♦ ♦ ♦

Growing As Teachers: What Participants Had to Say About SITS 2026

On The Best Thing About SITS

"As a program the greatest strength of SITS is the intentionality and focus... It affords both time and accountability to develop our skills so that we might be the best teachers we can be for the glory of God and the sake of our students."

"SITS allows the faculty to dedicate time to improving their course and interacting with their colleagues within and across departments, creating important synergy. Finding this time during the school year is difficult while also tending to normal teaching responsibilities."

"I believe the greatest strength of SITS is the collaboration with our colleagues and receiving an outside perspective on our courses and teaching."

"The collegiality of working with and seeing our fellow colleague's work. A chance to think through how we teach is so valuable to me."

"SITS allows me to be reminded of the goals of teaching when it gets very easy just to fall back into the easy path of information transmission."

"The strength of SITS is that it forces you to think about the bigger picture of your course before working on the details of it."

"The continued reminders that learning is not the transfer of information but that getting the students involved in their own learning is key."

"Unhindered time to think about courses without administrative or teaching responsibilities."

"I love having the time to get feedback from colleagues on how they would approach teaching a certain topic or if what I'm doing makes sense."

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On the "Declassified" Sessions

"I appreciated seeing an example of course design from start to finish, and seeing the flow chart helped me understand the process you followed. I saved the files for future reference."

"High value. Should be repeated every few years. The overview from start to finish is something I felt Tracks 1-3 were missing since we got everything in bits and pieces."

On This Summer's Active Learning Emphasis

"Trying out new teaching techniques was very helpful I thought. I feel it made a significant difference in the class I tried out."



practice as it gave me ideas how I could apply it in my own classes."

"I thought it was very good. It totally gave me an opportunity to change the way I taught a concept that students have struggled to grasp in my class."

"This was my favorite addition of this year's SITS. I enjoyed the challenge of applying a new active learning strategy to a lecture that needs to be reworked."

"I was able to incorporate some of the ideas into the unit I was revising. I liked being able to see the activities being put into

On Interaction with Colleagues

This is one of the best parts of SITS as it allows for us to not only discuss ideas about teaching and learning but provides an opportunity to get to know each other as individuals."

In Appreciation

"I am very grateful for the opportunity we have during SITS to work on our teaching and do so from a learner focused perspective. I believe my students have benefited from the work that is invested each summer I have been able to participate."

"I appreciate the planning and execution by...the presenters to make SITS work so well. Monday's devotions and Tuesday's snacks were a big plus. I think my 16th year of SITS was the best one so far! Thank you."

"Thanks for all the hard work and sacrifices to make this happen!" ♦ ♦ ♦