

# 2025 EXCELLENCE IN TEACHING AWARD PORTFOLIO SUBMISSION

# MORGANE GOLAN

**PH.D. CANDIDATE &  
GRADUATE TEACHING ASSISTANT**



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Regenerative Bioscience Center  
Rhodes Center for Animal & Dairy Science



**UNIVERSITY OF  
GEORGIA**

**Regenerative Bioscience Center**

# PORFTOLIO TABLE OF CONTENTS

## **AWARD NOMINATION MATERIALS**

Letters of Nomination .....	iii - vi
Letter from Dr. Franklin West, Professor .....	iii - iv
Letter from Dr. Holly Kinder, Lecturer .....	v - vi
Personal Statement .....	vii

## **TEACHING PORTFOLIO**

Teaching Philosophy Statement .....	1 - 2
Professional Development & Training Related to Teaching .....	3 - 4
Description of Courses Taught .....	5
Sample Teaching Materials & Student Work .....	6 - 8
Stem Cell Matching Game .....	6 - 7
Manuscript Critique Assignment .....	7 - 8
Evaluations of Teaching .....	9 - 10
Quantitative Student Evaluations & Anonymous Feedback .....	9
Qualitative Evaluations: Students & Mentor .....	10
Innovative Teaching Projects & Roles .....	11 - 12
The Biotech Toolbox: DBER Project .....	11
The RBIO Open House: Community Engagement Project .....	12

January 17th, 2025

To the Excellence in Teaching Award Selection Committee,

I am very excited to write this letter of recommendation for Ms. Morgane Golan in support of her Excellence in Teaching Awards nomination, as I believe her to be the perfect candidate for this award. Morgane is passionate about STEM education and student advocacy, and she is a future leader in the regenerative bioscience field. I have known Morgane for over 4 years as a co-mentored graduate student in my research laboratory and as a teaching assistant (TA) in my Animal Biotechnology (ADSC 3130) course.

Morgane has proven to be an innovative and detail-oriented researcher in the laboratory and she is also a skillful research mentor. Her PhD project focuses on the development of a neural stem cell-derived extracellular vesicle (NSC-EV) therapy for neural injuries. This is a novel and extremely promising therapeutic, but like all new therapies, NSC-EVs require rigorous testing for efficacy, safety, and clinical translatability. Morgane has shown a keen ability to read the literature, identify key questions, and design the appropriate experiments to address questions quickly and precisely. Her strong organization skills and commitment to excellence have resulted in clean experiments with outstanding results. Morgane embodies the UGA mentoring and experiential learning mission by training undergraduate researchers to hone their critical laboratory skills and imparting practical and theoretical knowledge. She works tirelessly with them to develop their research skills and incorporates personal and professional development into her mentorship. Morgane is changing lives on a large scale with her life-saving NSC-EV research and one student at a time with her hands-on mentoring approach.

Morgane shines in the lab, but her star burns like a supernova in the classroom. As a professor with over a decade of classroom teaching experience, I have had a number of really good TAs. I have never had *a Morgane Golan*. In 2021, during her first year as a TA in my classroom, she paid close attention to my teaching style, the material, and the challenges students had in learning difficult content like cloning, stem cell therapy, and tissue engineering. Over the course of that year, Morgane sought out mentorship and guidance in teaching to develop her skills in evidence-based instruction. She began attending workshops at the Center for Teaching and Learning (CTL), and even started working towards the GradTeach certificate. The following summer, Morgane brought a new pedagogical perspective to the course and developed a comprehensive active learning plan. To illustrate: Morgane transformed a conference room that seats 24 into a team-based learning classroom for 45; she wrote lesson plans for each day of class and activity guides for every in-class activity; she even built our class eLC page. We deployed the newly structured course for the first time in the fall of 2022, and it was phenomenal. Morgane incorporated activities and experiential learning opportunities scaffolded along Bloom's Taxonomy, enabling students to connect with course material in a meaningful, modern, and exciting way. Student class participation and attendance increased over historical norms, accompanied by high praise and appreciation from students.

Morgane has taken her teaching practice to the next level by leading a Discipline-Based Education Research (DBER) project in the class. Her project focuses on a novel teaching element that she created called the Biotech Toolbox, which engages students to better understand and implement scientific research tools and technologies, like western blot analysis and immunocytochemistry. As we read published manuscripts throughout the semester, students build their toolbox, curating their own personal study guide. The

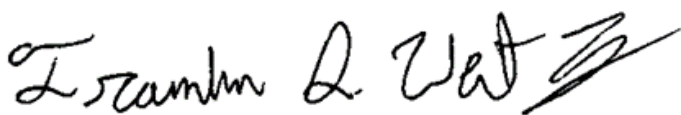
toolbox is a categorizing activity focused on important elements like the tool's purpose and principles, strengths and weaknesses, and examples of the tool's real-life application. As part of this study, Morgane has learned a tremendous amount about the theoretical and practical components of DBER; she has studied experimental design, developed her own survey tools and implemented course changes to facilitate the study parameters. The course modifications have included: additional active learning strategies, tours of research facilities, expert talks, updates to class materials, and a mid-semester formative evaluation to integrate student feedback. The students have really enjoyed the additional learning opportunities and the change in approach. Morgane has done an incredible job. In reality, Morgane is not a TA but a course co-instructor.

Morgane's teaching excellence extends beyond the undergraduate classroom and the laboratory. Throughout her tenure as president of the RBC Graduate Student Association, from 2021 to 2023, and as TA for the RBC Graduate Seminar course for the 2022 academic year, she served as a strong and positive leader to her peers. She coordinated numerous graduate student learning activities including workshops on paper and grant writing and presentation skills, as well as professional development, like career speakers and panels. She also oversaw several K-12 educational outreach programs including a first-ever RBC-hosted event for kids at the Athens public library. Morgane's work has had an impressive impact within the RBC and the regenerative bioscience community at large; she has brought her education research and love of teaching to the RBC Research Symposium, the multi-institutional Regenerative Engineering and Medicine conference, and the NSF Engineering Research Center for Cell Manufacturing Technologies. This has had a ripple effect on our departmental culture, which led us to invite the CTL for a training during our faculty retreat. Morgane is an inspirational leader who promotes scholarship and bridgebuilding.

Finally, and perhaps the most important consideration to bring to your attention: Morgane has no teaching obligation whatsoever. Excellence in teaching is a passion and priority for Morgane and she is teaching because it matters to her. She has already begun designing a new course for undergraduates focused on public policy and bioethics in regenerative bioscience and I know that she will alter the landscape of the field through integrated teaching and research. Exemplifying this, she successfully petitioned her Ph.D. Advisory Committee to include her education research as part of her dissertation, in addition to her rigorous bench research. Morgane is pursuing leadership roles, teaching opportunities, and education research entirely of her own volition and she is driving her own development in these areas. Her involvement with the CTL, including her Outstanding TA Award and her selection for the 2024 Future Faculty Fellowship, are further evidence of her effort and hard work.

Morgane is an outstanding researcher, teacher, and mentor with a vision. She brings a level of excellence that makes me excited to give her my highest level of recommendation. It is my belief that Morgane is one of the greatest graduate student educators at the University of Georgia. Please consider her application with my highest commendation.

Kind Regards,



Franklin D. West, Ph.D.  
Professor of Regenerative Bioscience



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January 17th, 2025

To the Excellence in Teaching Award Selection Committee,

I am pleased to write this letter to support Morgane Golan's nomination for the Excellence in Teaching Award. Morgane and I have been working closely together since the beginning of 2023; she has been the graduate teaching assistant for my RBIO 4950: Senior Capstone in Regenerative Bioscience course and my collaborator in student recruitment and outreach activities. Morgane is advancing the regenerative bioscience program through innovative teaching and community building, and she is an outstanding candidate for this award.

Morgane's contributions to RBIO 4950 far exceed the typical responsibilities of a graduate teaching assistant. Given that RBIO 4950 was a new course in Spring 2023, Morgane went above and beyond toward building this course from the ground up. Drawing upon the innovative pedagogical approaches she has learned through various UGA Center for Teaching and Learning (CTL) workshops, Morgane helped me create an inclusive, transparent, and engaging course that promoted student success both inside and outside of the classroom. For example, she proposed and led weekly lab tours of the Regenerative Bioscience Center (RBC), for students to gain hand-on experience and deeper insight into the practical applications of regenerative bioscience. She also designed weekly reflective blog assignments that encouraged students to connect these lab experiences with their classroom learning and personal aspirations.

A standout element of Morgane's teaching practice is her ability to craft unique learning experiences: her creativity is unparalleled. She conceptualized and orchestrated numerous experiential learning opportunities, including a laboratory section for students to learn how to culture fluorescently-labeled stem cells and subsequently observe those cells at the UGA flow cytometry core. She also arranged for students to record a podcast in the CTL Edit Suite. This exercise prompted students to reflect on their journey in the regenerative bioscience program – both their challenges and successes – and provide advice for incoming students. This was an important metacognitive activity for the students in their final year of college. Students in this course also learned how to conduct and write a narrative literature review. Morgane was an integral part of this process, cultivating their critical thinking and problem-solving skills and providing support and timely feedback at each step in the literature review writing process. I truly viewed Morgane more as a co-instructor than a teaching assistant. I can attest that Morgane has a passion for transformative education, as well as the technical expertise that reflect true excellence in teaching.

Beyond her classroom contributions, Morgane has demonstrated that she is a leader in community engagement and outreach activities at the RBC. One of her most impactful contributions was her significant role in the conception, planning, organization, and execution of the Regenerative Bioscience Open House event held on December 7th, 2024. Morgane and I worked together to shape this event as a day of educational outreach to introduce high school students interested in science and healthcare to the RBIO major at UGA and connect with science teachers to help them bring regenerative bioscience concepts into their classrooms. This event exemplifies her commitment to bridging academia and the broader community by way of effective science communication. Notably, Morgane developed an interactive Regenerative Bioscience Bingo game that successfully engaged participants of all ages, showcasing her ability to translate complex scientific concepts into accessible and enjoyable learning experiences.



Morgane possesses remarkable talent in teaching and community outreach because of her exceptional dedication to professional development. Her recent completion of the UGA Graduate Portfolio in Community Engagement and the GradTeach Certificate reflect her commitment to making science more accessible and evolving as an educator. Her participation in evidence-based teaching programs, such as the UGA Future Faculty Fellows Program and the John Hopkins University Teaching Academy, has equipped her with the tools to create inclusive, engaging, and learner-centered environments. Moreover, her discipline-based education research (DBER) focused on creating active learning strategies in Dr. West's ADSC 3130 course further underscores her dedication to advancing teaching practices.

In all my years mentoring graduate students, Morgane stands out as an innovator, collaborator, and advocate for educational excellence. What sets her apart is her ability to connect with students, faculty, and the broader community; seamlessly integrating teaching and outreach into a cohesive vision for impactful education. I am confident that Morgane will continue to inspire and shape the next generation of scientists and educators. Thank you for considering Morgane Golan for this distinguished honor. She truly embodies the spirit of the Excellence in Teaching Award. Please do not hesitate to contact me for any additional information.

Sincerely,

*Holly Kinder*

**Holly Kinder, PhD**

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# PERSONAL STATEMENT

Dear Members of the ETA Selection Committee,

My name is Morgane Golan and I am a 5th-year Ph.D. Candidate in the Regenerative Bioscience Center (RBC). I am honored to apply for the Excellence in Teaching Award and appreciative of this opportunity to share my journey as an educator dedicated to advancing student engagement, fostering inclusive learning, and training future leaders in biomedical sciences.

My teaching journey began as an undergraduate TA in Poultry Management and Anatomy & Physiology of Domestic Animals at UMass Amherst. These courses were transformative for me, having revealed my passion for science communication and community building. It was through these experiences that I discovered the importance of preparation, adaptability, and creating an asset-based classroom environment where students feel valued and inspired to learn. Since then, I have pursued every opportunity to grow as an educator and develop these skills, culminating in my current role at UGA, where teaching has become central to my identity as a scientist.

In Fall 2021, I approached Dr. Franklin West to pursue a teaching practicum for the Animal Biotechnology course. Recognizing an opportunity to enhance the student experience, I worked with Dr. West to transform the course structure. I introduced a new syllabus integrating active learning strategies, and designed innovative projects to connect theoretical knowledge with real-world applications. These changes yielded remarkable results: increased student engagement, improved performance on assessments, and strengthened peer relationships. Inspired by this success, I launched a discipline-based education research (DBER) project in Fall 2023, through the Center for Teaching and Learning (CTL), to investigate the effects of a novel active reading strategy. The insights from this study will bridge the teaching and regenerative bioscience communities, further advancing evidence-based education practices in this growing field.

At the heart of my teaching philosophy is a commitment to fostering a learning environment where students feel supported, challenged, and inspired. I believe that learning should be joyful, and I endeavor to bring humor, enthusiasm, and empathy to every class. Beyond the classroom, I mentor several undergraduate researchers in the Stice Laboratory. I guide them through experimental design, data analysis, and scientific writing, while nurturing their confidence and curiosity. Witnessing their growth is among the most rewarding aspects of my program. Additionally, my teaching philosophy extends to the K-12 educational outreach activities that I lead within the RBC. My passion for science teaching has augmented the impact of my community engaged outreach. I am truly privileged to train the next generation of biomedical scientists and healthcare practitioners in the classroom, the lab, and beyond.

My dedication to teaching excellence has been enriched by the resources and programs offered by UGA's CTL, among other professional development opportunities. I have participated in workshops, book clubs, and formal coursework, earning the GradTeach certificate and participating in the 2024 Future Faculty Fellowship Program (3FP). These experiences have deepened my understanding of pedagogy and equipped me with tools to innovate and adapt my teaching practice. For example, with CTL training and guidance, I implemented techniques like scaffolding assignments taxonomically and facilitating peer-instruction, which have significantly enhanced student learning outcomes.

Teaching in the field of regenerative bioscience allows me to bridge cutting-edge research with transformative education. My ultimate goal is to develop interdisciplinary curricula that not only prepare students for scientific careers but also enable them to address global challenges in healthcare and biotechnology. The Excellence in Teaching Award would validate my efforts and provide a platform to further advocate for excellence in STEM education.

Thank you for considering my application. I am excited by the possibility of contributing to UGA's legacy of teaching excellence, and continuing to impact the lives of students through innovative and compassionate education.

Sincerely,  
Morgane Golan

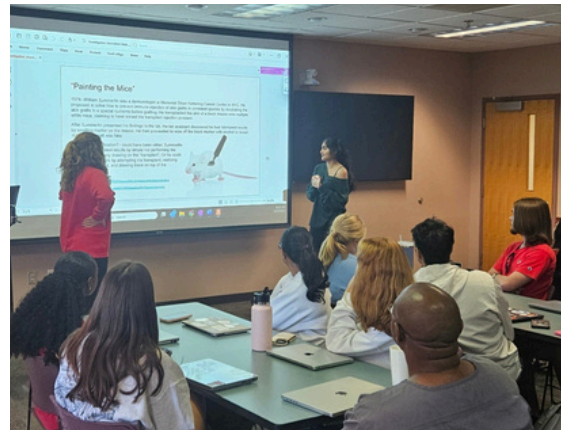
# TEACHING PHILOSOPHY STATEMENT

## Educator Goal

My goal as an educator in the field of Regenerative Bioscience is to develop and train the next generation of biomedical scientists. In every course, I strive for a student-centered learning environment, so that all students know that they belong in the sciences and are empowered to pursue a career in research, medicine, or allied-health professions. My teaching practice emphasizes active learning approaches, collaboration and community-building, and creating opportunities for hands-on, personal learning experiences. My teaching philosophy is rooted in promoting student success and supporting the future leaders in regenerative biology and medicine.

## Active Learning Enhances Student Success

Active learning refers to the adoption of instructional practices that engage students in the learning process. This promotes improved student attitudes, stronger writing and critical thinking skills, higher exam performance, and lower failure rates, among myriad additional benefits. Importantly, active learning imbues students with a sense of accountability – they feel invested in their learning and they believe in their ability to succeed. Students with a positive academic self-efficacy are better able to manage bouts of imposter syndrome and are less likely to give up when faced with academic challenges. With these significant outcomes in mind, I implement active learning strategies in my teaching. For example, in the Animal Biotechnology course, each unit centers an original research article that is considered a seminal contribution to the field, so that students learn to read and appreciate peer-reviewed research. Reading a research article can be daunting and uncomfortable, but I employ strategies to mitigate this stress: students write one-sentence summaries for each figure we read, they contribute to a running document of key take-aways and muddiest points, and they facilitate their own student-led discussions. I also incorporate more time-intensive active learning projects throughout the course. For example, after reading animal cloning literature, students work in teams to write a 1-page grant proposal for a cloning program to save a species of their choice from the brink of extinction (we call this the “Jurassic Park” activity). To emphasize ethical issues in science, teams research recent instances of scientific misconduct to present as a case study to the class, in the style of investigative journalists (this is the “Fraud Watch” activity). These activities were specifically named in my end-of-semester evaluations by students who recognized their value towards achieving learning outcomes and long-term comprehension.



*Students presenting their Fraud Watch news report to the class (fall 2024).*

## Collaboration is a Critical Skill for Scientists and the Scientific Community

The old-school image of the scientist working alone in the lab, siloed from the rest of the world, and conducting research in a bubble is outdated and does not represent the scientific landscape as it exists today. It is critical for scientists to work well within a team, potentially comprising collaborators all over the globe, and certainly more local teammates, to address today's complex and far-reaching problems. Thus, burgeoning scientists must develop and hone their communication skills and their capacity to connect with others. I emphasize community building in every class: we establish community norms rooted in respect and kindness, so each student feels comfortable expressing their voice. By promoting these tenets, students practice skills in listening, verbal and written communication, and working



through tough problems in a team. To illustrate, in one activity, students in the Animal Biotechnology course work together in teams to identify valuable animal species for biomedical research, including the mouse, pig and frog (this is the “Animal Models” activity). In their table pods, they first research the applications of their selected species and write a summary of their findings on poster paper. Each poster then makes its way around the room, from team to team, so that manuscript examples for each application can be added. Over the course of the class period, they develop a system for delegating tasks, they work together to decide on their research focus, and they explain scientific ideas to one another. It is truly an impressive feat of collaboration and the students love this team-to-class activity; ultimately, they all work together to produce a comprehensive final product. By the end of the semester, students have practiced thoughtful collaboration towards becoming stronger science communicators.

### **Experiential Learning Inspires Passion**

Undergraduate students in science disciplines can struggle with applying what they learn in a textbook to situations in the real world. Bridging theoretical knowledge with practical skill is vital: research scientists and medical professionals do much more than reading and writing at a desk – we innovate at the lab bench. This calls for early and meaningful formative experiences in the lab. My greatest mission as a scientist is to promote accessibility, and I do this in the classroom by creating opportunities for students to experience scientific research for themselves. For instance, in designing the Regenerative Bioscience Senior Capstone course, I devised a plan for students to experience lab tours as if they were new graduate students rotating through labs to select a research position within the Regenerative Bioscience Center. In one lab, they will thaw and plate down a vial of stem cells; in another they will handle and evaluate the behavior of mice with a neurodegenerative condition; in yet another they will slice frozen tissues and study taste buds under a microscope. Each lab experience resonates with students uniquely, and the breadth of experiences means that each student will find a research focus that ignites their passion, or a mentor whose story inspires them. These experiences facilitate the transition from uncertainty to confidence, from novice to expert, by helping students identify their own scientific interests.

### **Summary**

My teaching philosophy is founded in active learning, collaboration, and experiential learning. The growing field of Regenerative Bioscience demands a higher caliber of scientists than ever before, and therefore an even higher caliber of teachers. Training and coaching students to achieve their greatest potential is critical to shaping the future of research and medicine.



*Students studying healthy and stroked pig brains during a West lab tour (spring 2023).*



*Students geared up for a lab animal research facility tour, hosted by a graduate student in the Yao lab (spring 2024).*

# PROFESSIONAL DEVELOPMENT & TRAINING RELATED TO TEACHING

## Teaching-Related Awards and Honors

- UGA Office of Service-Learning (OSL) Certified Graduate Portfolio in Community Engagement, January 2025
- UGA CTL Graduate Teaching (GradTeach) Certificate, January 2025
- Johns Hopkins University (JHU) Teaching Academy Online Institute, July 2024
- UGA CTL 2024 Future Faculty Fellow
- UGA CTL 2023 Outstanding Teaching Assistant Award Winner
- Center for the Integration of Research, Teaching and Learning (CIRTL) Associate, Fall 2020

## Teaching & Education Research-Related Talks/Presentations

- *Discipline-Based Education Research: Active Learning in Regenerative Bioscience*. Invited talk presented to: 1) NSF Engineering Research Center for Cell Manufacturing Technologies, 7/24/2024; 2) Regenerative Bioscience Center Seminar Series, 2/22/24
- *Teacher's Hardware: Building your Toolbox for Effective Instruction*. TA Café workshop presented to UGA teaching community, 9/4/2024
- UGA TA Orientation Q&A Panelist, 8/13/24
- *Evaluating the Student Impact of a Novel Active Learning Strategy in Animal Biotechnology*. Poster presented at: 1) University of Georgia Spring Teaching Celebration, 4/3/2024
- *"Thanks, Bestie": Setting Healthy and Respectful Boundaries with Students*. TA Café workshop presented to UGA teaching community, 2/9/24
- *The Biotech Toolbox: A Project-Based Active Learning Strategy in Regenerative Bioscience Education*. Poster presented at: 1) Regenerative Engineering and Medicine Conference, 5/9/2023; 2) Regenerative Bioscience Center 2023 Research Symposium, 4/13/2023; 3) University of Georgia Spring Teaching Celebration, 4/5/2023

## Coursework & Formal Training in Teaching

- GRSC7770: Graduate Seminar in Teaching (3 credits, Fall 2020)
- GRSC 7800: College Teaching and Student Learning (3 credits, Spring 2023)
- UGA CTL GradTeach Certificate (completed Spring 2025)

## CTL GradTeach Book Club

- *Teaching with AI: a Practical Guide to a New Era of Human Learning* by Bowen and Watson, Spring 2025
- *Small Teaching (2nd Edition): Everyday Lessons from the Science of Learning* by Lang, Fall 2024
- *Teaching Matters: A Guide for Graduate Students* by Haynie and Sprong, Fall 2022
- *Relationship-Rich Education: How Human Connections Drive Success in College* by Felten and Lambert, Spring 2022

## UGA Scientists Engaged in Education Research (SEER) Center Events

- Broadening Research & Instructional Designs for Greater Equity in STEM (BRIDGES), 2/1/25
- Hot Topics in STEM Education Round Table Event, 9/24/24

## CTL Seminar & Workshop Participation

- UGA Annual Spring Teaching Celebration 2023 and 2024
- Balancing High Expectations & Compassion: Teaching Self-Determined Seekers, 1/31/25
- Building Assessments with Quizzes and Question Libraries in eLC, 2/7/24
- Preparing for the Job Market: The Teaching Statement, 10/06/2022
- Overcoming Student Resistance to Learning, 09/20/2022
- Creating Space for Ourselves and our Students, 09/08/2022
- Creating a Syllabus for a More Inclusive Class, 03/25/2022
- TILting the Scale: Creating Clear and Transparent Assignments for Student Success, 02/07/2022
- Stepping Away from the Spotlight: Becoming a Student-Centered Instructor, 01/20/2022
- Fostering Student Well-Being, 09/23/2021

## UGA Engineering Education Transformations Institute (EETI) Events

- Generative AI in Engineering Education, 10/1/24

### **UGA 2024 Future Faculty Fellows Program**

- From Classroom to Auditorium: Effective Teaching at Any Scale, 11/8/24
- Holistic Student Growth Strategies, 10/25/24
- Riding the Waves of Motivation, Engagement & Resistance, 10/11/24
- Thriving in Academia: A Dean's Blueprint for Building a Long and Rewarding Academic Career, 9/13/24
- Cultivating Collaboration & Cooperation in your Learning Activities, 8/30/24
- Fall Retreat: Course Design Workshop, 8/8-8/9/24
- Spring Retreat: Generative AI in Higher Education, 5/13-5/14/24
- Creative Teaching Award Winners: Teaching Outside the Box, 3/15/24
- Non-Tenure Track/Alternative Academic Career Paths, 3/1/24
- Moving Beyond Content: How Instructor Language Can Shape Classroom Learning Environments, 2/26/24
- Cover Letters and Job Materials for Teaching Roles, 2/2/24
- Graduate Mentoring: Parallel Processes
- Kickoff Retreat: Curating an Authentic & Aligned Portfolio of your Teaching, 1/19/24

### **UGA Active Learning Institute 2024 Summit**

- *From "Teaching by Telling" to "Learning from Peers"*
- Building an Active Learning Instructor Toolkit with Successful Tips & Techniques
- Success Stories: Case Studies of Effective Active Learning in STEM Classes
- Creating a Sense of Belonging for Every Student

### **Additional Pedagogical Training**

- *Johns Hopkins University (JHU) Teaching Academy Online Institute, Summer 2024*
  - Backward Design, Assessment of Student Learning, Inclusive Classrooms through an Anti-Oppressive Lens, Universal Design for Learning, Grading and Rubrics, Course Planning and the First Day, Scholarship of Teaching and Learning
- *Center for the Integration on Research, Teaching and Learning (CIRTL): An Introduction to Evidence-Based Undergraduate STEM Teaching, Fall 2020*
  - Principles of Learning, Learning Objectives, Assessing Prior Knowledge & Learning, Active Learning, Inclusive Teaching, Lesson Planning

### **CTL-Facilitated Teaching Evaluations**

- Teaching Observation: Conducted by Dr. Ashley Harlow, 2/3/2023
- Microteach Activity: Facilitated by Dr. Ashley Harlow, 3/29/2023
- Mid-Semester Formative Evaluation: Conducted by Dr. Kelly Ford, 9/26/2023 and 10/3/24

### **The Torrance Center for Creativity at UGA 2024 Festival of Ideas: Creativity & Learning**

- The Creativity – Learning Nexus
- Measuring and Developing Creativity in Educational Contexts
- How Creativity Works: Making Creativity Real in your Classroom, School or Organization
- Human Creativity x AI: Possibilities and Pitfalls in Educational Contexts
- Weaving Creative Thinking into Every Strand of your Curriculum
- Creativity – Educators' Beliefs and Practices: Voices from the Field
- Can We Make Engineers Creative?

### **Mentorship of Undergraduate Research Assistants at UGA**

- Avery Kanemasu – Biological Sciences student: Fall 2020 – Spring 2022
  - UGA CURO Research Assistantship, Fall 2021
- Leah McCarthy – Regenerative Bioscience student: Fall 2023 – Ongoing
  - UGA CAES Undergraduate Research Initiative, Spring 2024
  - UGA CURO Summer Research Fellowship, Summer 2024
  - UGA CURO Research Assistantship, Fall 2024
- Ashley Ellis – NSF REU Summer Intern: Summer 2024
  - People's Choice Poster Award Winner, CMat Annual Retreat
- Mahathi Turlapati - Regenerative Bioscience student: Fall 2024 – Ongoing

### **Professional Affiliations Aligned with Teaching & Education Interests**

- Scientists Engaged in Education Research (SEER)
- Engineering Education Transformations Institute (EETI)
- Center for the Integration of Research, Teaching and Learning (CIRTL)
- International Association for Research on Service-Learning and Community Engagement (IARSLCE)



# DESCRIPTION OF COURSES TAUGHT

## GRADUATE TEACHING ASSISTANT

### ***ADSC/RBIO 3130: Animal Biotechnology***

Fall 2021, 2022, 2023 & 2024

***Instructor:*** Franklin West, Ph.D.

***Enrollment:*** 30 (2021/2022) to 45 (2023) primarily junior/senior undergraduates

***Course Description:*** This course introduces students to cutting-edge biotechnologies for animal and human health and research. We analyze and discuss the primary literature on stem cells, biomaterials, large animal models for disease, and development of therapies and treatments. We cover basic cellular and molecular biology techniques and their applications in a real-world research setting. The topics will be broad in scope and cover cell biology, genetics, and similar themes.

***My Role & Responsibilities:*** I redeveloped the course syllabus with respect to evidence-based practices in STEM teaching and universal design for learning. I wrote lesson plans, activity guides and assignment rubrics (see pages XX); enabling the active learning in the course. I constructed formative and summative assessments, and graded all submitted material. I foster a student-centered classroom environment, emphasizing student voices through team-based, collaborative problem solving.

### ***RBIO 8888: Current Literature in Stem Cell Biology and Regenerative Medicine***

Fall 2022 and Spring 2023

***Instructor:*** Steve Stice, Ph.D.

***Enrollment:*** 10-12 graduate students within the RBC community

***Course Description:*** This is graduate seminar course examines topics related to stem cell biology including developmental biology, animal biotechnology, and human medicine. Graduate students present and lead discussions on current research projects under the purview of regenerative medicine. Graduate students in this course will develop their presentation skills in a multidisciplinary forum.

***My Role & Responsibilities:*** I organized the course schedule, coordinating guest speakers, workshops, and student presentations, with a focus on graduate student professional development. As such, I implemented and administered feedback surveys, ensuring that presenters received constructive criticism and evaluating the impact of guest speakers. I also arranged an inclusive weekly breakfast as a means of building community.



*RBC graduate students enjoying breakfast during RBC seminar (fall 2023).*

### ***RBIO 4950: Senior Capstone in Regenerative Bioscience***

Spring 2023 and 2024

***Instructor:*** Holly Kinder, Ph.D.

***Enrollment:*** 2-3 senior undergraduates graduating in the new RBIO B.S. program

***Course Description:*** In this course, students learn about current regenerative bioscience therapies and diagnostics through scientific paper discussions, field trips, and hands-on activities. Students write a comprehensive literature review that culminates in the proposal of a novel regenerative medicine strategy to address a human/animal disease or injury. Students also construct a poster that outlines their strategy and present at the annual RBC/ADS Symposium at the end of the semester.

***My Role & Responsibilities:*** I collaborated with Dr. Kinder towards the conception of this class. More specifically, I proposed the lab tour field trip component of the class, which I oversaw independently, in addition to leading class discussions. I also developed the two major assignment rubrics for this course; I contributed to the grading of literature reviews and I graded students' weekly reflective blog posts.

# SAMPLE TEACHING MATERIALS & STUDENT WORK

## STEM CELL IDENTIFICATION GAME

The “Stem Cell Identification Game” is the first team activity in Animal Biotechnology, following our introductory unit on stem cells. Pictured below to the left is my activity guide, which is structured to ensure transparency to students (TILTed), so that they can understand my expectations and the goal of the work. Below to the right is a sample of the cell descriptions that the students are tasked with categorizing.

### iPSC Identification Game

#### Purpose

This group activity applies theoretical knowledge of stem cell characteristics towards identifying examples of cells.

#### Task

Each team has been given a worksheet to complete, along with a selection of 5 index cards describing or displaying a cell type that you will work together to identify. You will have 5 minutes to identify the cells according to these categories:

Adult stem cell	Embryonic stem cell	Induced pluripotent stem cell (iPSC)	Not a stem cell
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Every 5 minutes, you will pass your set of cards to the neighboring table. We will repeat this cycle 9 times and the game will end once every group has evaluated all the cards.

#### Criteria

Once every table has identified the cell type on each card, your team will change to a different colored writing utensil to self-correct your worksheet. We will go through each answer one-by-one and you will write in the correct answer for any that you have answered incorrectly. Then you will turn in your worksheet to Morgane before leaving class. If your team has 40 or more of the 45 answers correct, you will all earn 1 bonus point on quiz 1!

These cells are multipotent but cannot give rise to ova.

These cells are the center of a major ethical controversy in research.

You have just donated bone marrow and the cells from your donation will be used to generate cell therapies.

These cells give rise to the three germ layers of an embryo.

These pluripotent cells were collected from a developing blastocyst.

These cells are reserved for cell replacement and are only deployed under specific circumstances.

These cells are immortal and undifferentiated but had to go through reprogramming to achieve these conditions.

These cells are taken from a patient's own body for producing cell therapies and they are manipulated in the lab.

These cells exist naturally in mammals and are capable of differentiating to any terminal identity, with great proliferative potential.

These cells are capable of achieving the three embryonic lineages through induction of pluripotency.

Pictured to the right is my lesson plan for this day of class; I utilize the BOPPPS model for lesson planning, which helps to keep the pacing of the class and ensure that Dr. West and I are meeting our objectives for the day. This lesson planning approach also allows for me to practice self-reflection and make improvements for the future, as I always make notes/corrections to my plans the after each day of class.

### Day 4: Ben-Nun Activity Day 8/29/23



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Phase of Lesson	Time (mins)
<b>Bridge:</b> 1. Ask class for any happy or positive news to share with the group	± 1
<b>Learning Outcomes:</b> By the end of the lesson, students will be able to: 1. Categorize stem cells based on their attributes	1
<b>Pre-assessment:</b> *Informal, Socratic lecture style	
<b>Participatory Learning (instructional activities):</b> 1. Frank finishes Lecture 1/Ben-Nun 2. Address specific questions & areas of confusion 3. Biotech Toolbox for Ben-Nun: Karyotyping, PCR, RT-PCR, ICC 4. Teams select their papers for Manuscript Critiques: Golding, Gomez, Gerlach, Rama & Matsunari 5. Card Game activity in teams <i>Work in tables, then go through each card as a class. Review answers next class</i>	±5 7 ±5 7 <del>±6</del> 5 5 ±5 50
<b>Post-Assessment:</b> Planning for Quiz 1 on Thursday	
<b>Summary/Close:</b> Bring your own copy of Panula to class on Thursday! You can try to read through it before we meet, but don't worry if you need help – this is a very tough paper. Please return tables to horseshoe!	± 1

This activity was developed in the style of the “categorizing grid” active learning technique, and captures the “understanding” and “remembering” levels of Bloom’s Taxonomy, requiring skills in identifying, defining, matching, categorizing and grouping.



Pictured to the right is one team's submitted worksheet, showing how they identified each cell identity after group deliberation. Every answer on this worksheet was correct; this team worked very efficiently by dividing the descriptions evenly between team members, then took turns explaining their rationale to their team. They asked questions when they needed clarification or had disagreements about an answer.

This activity sets the students up well for the rest of the semester by providing a solid foundation in the fundamentals of stem cell biology. These are reoccurring concepts that must be well-understood! Additionally, as this is the first group activity of the semester, it also serves as an excellent team-building exercise. Students get to know one another and talk through their thoughts.

1	ASC	16	iPSC	31	iPSC
2	ASC	17	iPSC	32	iPSC
3	ESC	18	ESC	33	iPSC
4	iPSC	19	NOT	34	NOT
5	ESC	20	NOT	35	NOT
6	ESC	21	NOT	36	NOT
7	ESC	22	ASC/iPSC	37	NOT
8	ASC/ESC/iPSC	23	NOT	38	NOT
9	iPSC	24	NOT	39	ESC
10	iPSC	25	NOT	40	NOT
11	ASC	26	NOT	41	NOT
12	iPSC	27	NOT	42	NOT
13	NOT	28	NOT	43	iPSC
14	NOT	29	iPSC	44	NOT
15	NOT	30	NOT	45	ASC

*The students offered very positive feedback on the activity at the end of the semester:*

"The most valuable activity we did was probably the matching game. This allowed us to understand the differences from ESC and iPSCs."

"I think that the ID description matching game in the first unit was very helpful in understanding all the differences between ESCs, iPSCs, adult stem cells, etc."

## MANUSCRIPT CRITIQUE ASSIGNMENT

The "Manuscript Critique" is an independent writing assignment that students complete as a focused analysis and evaluation of one of the manuscripts we read during the semester. Pictured to the right are the purpose and task portions of the TILTed assignment guide.

The activity that students find most valuable toward writing an excellent Manuscript Critique is grading one for themselves! Very early in the semester, students choose an old submission to grade for homework, then we talk through the grading rubric for each paper.

### Purpose

The purpose of this essay-style paper is to develop skills in critical analysis of scientific literature and technical writing ability. This will increase your comfort in reading and evaluating published articles in the field of biotechnology, and will prompt you to become a more empowered, skeptical and thoughtful reader. As a result of completing this assignment, you will be able to effectively summarize a manuscript and critique the scientific approach, figures, results, and significance of the work.

### Task

You will write a critique for one of the manuscripts we read in class. The manuscripts will be assigned early in the semester and the critiques will be turned in 1 week after we complete the unit for that paper in class. The papers are to be turned in via eLC.

Your essay should be about 3-4 pages double-spaced, Times New Roman, size 12 font. There is no word or page maximum but you should aim for clear and concise writing. The critique should be written in the third person and should not include subjective opinions but objective statements of fact.

The paper is comprised of 4 main components: introduction, summary, critique, and conclusion. Your primary objective is to provide an evaluation and analysis of the research.

The University of Guelph McLaughlin Library has published a guide entitled "Write a Critical Review of a Scientific Journal Article", which will be your most vital tool in writing your critique. You should begin by reading through the guide, which is available [here](#). You should also refer to the example Manuscript Critique papers for Panula et al. on eLC for inspiration in organizing your paper and critically analyzing the manuscript that you will be evaluating.

You may collaborate with others who are writing about the same manuscript as you are, to ensure your critiques are comprehensive and thorough, but plagiarism will not be tolerated and you are responsible for turning in your own paper. You are encouraged to seek edits and feedback from your team members!

You may follow this [step-by-step guide](#) for completing the assignment:

Pictured below is the grading rubric for the assignment, with a student's annotations in pink, compared to my scoring in blue - notably students were typically much harsher in their grading than I am! This activity gives students important insight for their own writing!

Grading Rubric				
Criteria	4 points	7 points	10 points	Score
Introduction 1 paragraph minimum	Gives very basic introduction of the manuscript, limited to author information and article title	Includes information worth 4 points, as well as the specific question being asked by the researchers	Includes information worth 7 points, as well as a thesis statement previewing the analysis	
Summary 2 paragraph minimum	Summarizes the objectives of the researchers	Includes information worth 4 points, as well as the findings and conclusions of the researchers	Includes information worth 7 points, as well as the methods and rationale of the researchers	10
Critique 3 paragraph minimum	Discusses the strengths and weaknesses of the research approach, but fails to provide specific evidence	Includes information worth 4 points and also provides evidence to illustrate analysis	Includes information worth 7 points, as well as commentary focused on the significance and scientific value of the manuscript	8
Conclusion 1 paragraph minimum	Summarizes key points of the manuscript, but provides no further insight	Includes information worth 4 points and calls back to key points of the critique	Includes information worth 7 points and closes with commentary on the relevance of the research and broader impact on the field	15
Writing	Minimal effort was made to evaluate and analyze the manuscript; writing is weak, poorly edited and rushed	Some effort was made to analyze the manuscript, but University of Guelph Guide is under-utilized; writing is unpolished	Clear effort and care were put into the essay; use of University of Guelph Guide is apparent; writing is detail-oriented and well-edited	7
				/50

\* Scores are doubled to give the final assignment grade out of 100 points.

35/50

Missing good thesis  
University of Guelph guide  
there were so many weaknesses in this paper, they really failed to describe weaknesses like they did with strengths  
again only focused on strength & not any weakness  
i guess it was good! Just not great

Another way that I support my students to succeed in writing their Manuscript Critique is by providing feedback on their first draft. Students appreciate this guidance and the opportunity to make improvements before submitting their work for a grade. A student's first draft with my comments and edits is pictured below.

#### Matunari Critique

Over the past 70 years stem cell research has become a controversial practice. Stem cell research in modern regenerative medicine began in the 1950s, with the first bone marrow transplant. Fast forward to 2013, stem cell research has become a hot topic in regenerating organs using pluripotent stem cells, specifically ES cells and Induced Pluripotent Stem Cells (iPSCs), in swine models. Matunari's main objective was to transplant pancreatic competent pluripotent stem cells into an apancreatic pig embryo to determine if the cells would develop into a pancreas. Thousands of people each year need organ transplants and on a daily average 18 people miss out and die because of now-unavailable organs. Therefore, if there is a way to grow organs for people who need them, it could be a life-altering discovery and have a lifelong effect.

**MISSING A THESIS STATEMENT.**

The first step in this research was to determine whether pluripotent stem cells could generate organs in-vivo using blastocyst complementation by injecting an embryo from an organogenesis-disabled embryo. This study was performed in mice and was very successful. However, in this study to mimic humans it was obvious that the experiment needed to be performed in an animal that is most similar in make and structure, the pig. Pigs were also chosen

Morgane Eleanor Golan
...
Add section headings  
November 12, 2023, 7:24 PM
@mention or reply

Morgane Eleanor Golan
...
Find a new hook that makes more sense for this subject matter! Don't mention controversy unless you're writing a paper about ethics.
@mention or reply

Morgane Eleanor Golan
...
Add author info and paper title
@mention or reply

Morgane Eleanor Golan
...
Avoid redundancy
@mention or reply

Morgane Eleanor Golan
...
With what?
@mention or reply



# EVALUATIONS OF TEACHING

## QUANTITATIVE STUDENT EVALUATIONS

Anonymous quantitative evaluations were collected in the Animal Biotechnology course at the end of each semester, according to a 5-point Likert scale with 5 representing strong agreement with each statement. Average scores are reported below.

Prompt	Fall 2021	Fall 2022	Fall 2023
The instructor was knowledgeable of the subject being taught.	4.94	4.86	4.79
The instructor was enthusiastic about the subject.	4.94	4.90	4.81
The instructor was willing to give individual assistance outside of class.	4.89	4.90	4.90
The instructor encouraged students to think for themselves.	4.94	5.00	4.83
The instructor was clear about the basic principles, presented them in a logical manner, and tried to explain materials that were confusing to students.	4.89	4.86	4.80
The instructor was receptive to questions and/or discussion during class.	4.83	4.93	4.81
The instructor was prompt in returning graded materials.	4.72	4.83	4.86
Compared with other instructors you have had at this University, how would you rate the ability of this instructor?	4.94	4.97	4.76

F21 n = 18, F22 n = 29, F23 n = 42

## ANONYMOUS FEEDBACK

“An excellent class. Morgane worked hard to ensure that we enjoyed the class and learned the material while maintaining a steady pace. She was quick to implement changes based on the mid-semester evaluation and it definitely helped.”

“Morgane was the best part of the class!!!! She was AMAZING!!!! She returned our grades very quickly and gave us clear direction about our assignments. She was also an excellent lecturer. I honestly can't say one negative thing about her and her teaching style!!”

“Morgane was amazing. Animal Biotechnology was my favorite class this semester, and that is in no small part due to her efforts. The active learning activities and assignments were engaging and helped me interact with the material. I would not be as well-versed and familiar with the course's subject matters if not for Morgane.”

“Morgane is an amazing instructor. She is so passionate about the subject area, and her in-class activities were super engaging and always helped me to learn. She is one of my favorite instructors I have had at UGA. I enjoyed talking to her with office hours, and she was always super willing to help and showed that she wanted us to succeed in the class.”

“Morgane was incredible in this class. Her knowledge and willingness to help students was essential to my learning in this class.”

“Morgane was extremely helpful to each of us inside and outside of class. She wanted us to learn and further our understanding in the material. There was open communication and expectations were clear.”

“Morgane was the best TA! All the activities we did helped me understand the material better. She was always very quick about returning graded work and helpful whenever I had questions. I honestly wouldn't change anything about how this class is run and I wish more classes were like this one! The content was difficult, but Morgane made it easier to understand.”

“Morgane did a fantastic job with this class! She mainly led the activity days, which helped us to cement our understanding of the previous paper. These activities were great in trying to get us to talk about the subject matter and think for ourselves. Often, professors or TAs tell us what we should think, but Dr. West and Morgane really tried to get us to have our own feelings of the sometimes controversial topics we cover. Thank you Morgane for helping to create a truly wonderful classroom environment where I can genuinely say I learned so much and came out with a huge appreciation for what you do!”

“Morgane was so nice, always happy, willing to help, and caring about our mental health. She was very involved and really helped us learn. Her instructions were clear and I really enjoyed having her in class.”

## QUALITATIVE EVALUATIONS: STUDENTS & MENTOR

“In my 4 years at UGA I’ve never had a TA as valuable as Morgane was for Dr. West’s course. All great educators care for their students but Morgane always seemed to take it a step further. She listened and followed our suggestions for active learning and at times shifted the whole course schedule so we would not only meet learning objectives, but truly think critically to understand implications on the biotechnology field. From the first day of class to after grades were due, she made great efforts to be as accessible outside of the classroom as she was during class hours. She encouraged students to not only attend her office hours but participate in graduate seminars, her biotech book club, and other RBC events. Though it can sometimes feel overwhelming to be an undergrad at these events, Morgane always helped create a welcoming environment. Taking this initiative shows her passion for not only helping students succeed academically, but truly fostering a positive educational experience. I’m lucky to have been one of her students.” - Brian Kratt, former Regenerative Bioscience student, currently pursuing a M.S. in Regenerative Medicine & Entrepreneurship at Case Western University.



Photo from a 2023 Biotech Book Club meeting, including Brian (middle) and Leah (left).

“I have had the privilege to work closely with and learn from Morgane as a student in the classroom and a mentee in the lab. Because she was the Teaching Assistant in my Animal Biotech class, I was able to see how devoted she was to her students and her strong desire to see each and every one succeed. She was willing to help her students in any way, developed lesson plans to challenge us and intentionally sought out feedback and changed her teaching methods as a result. In addition to the classroom, I am lucky enough to work as Morgane’s Undergraduate Assistant and assist with her research in the Stice Lab. She has taught me numerous technical lab skills and even planned them synchronously with the material I was learning in class during that semester, to help maximize my learning. Morgane taught me how to read and interpret research papers and led me on an independent research project that I will continue to build on. Furthermore, Morgane has encouraged me and assisted me in developing my professional network and a career plan. She encourages me to set goals, teaches me how to communicate professionally and inspires me to challenge myself. Overall, Morgane is an excellent mentor and teacher who has helped me grow significantly. I am so thankful for her investment in me as a student and mentee, and I look forward to all I will be able to learn from her.” - Leah McCarthy, current Regenerative Bioscience student, awaiting decisions on her Ph.D. applications.

“Morgane was always engaged with students, helping them overcome their uncertainties and fears with a big smile, humor and a decidedly positive attitude; she was an expert at instructing students that lacked self-confidence. Morgane is also a force of nature when it comes to advocating for the student’s learning experience and outcomes. She succeeded in lobbying at the departmental and Dean’s office level to renovate the part of Hadley farm that housed the chickens. Thanks to her, we now have a brand new closed room (instead of an open stall) that keeps our flocks safe from outside fomites, and equipped with 2 Nest cameras. I am delighted to see that during her time at the University of Georgia, she has continued to teach and develop her skills. Morgane is a dedicated educator with truly outstanding communication skills, both oral and written. She truly has done an impressive amount of work on this subject, and I wholeheartedly support her for this Excellence in Teaching Award.” - Dr. Helene Cousin, Teaching Mentor at UMass Amherst

# INNOVATIVE TEACHING PROJECTS & ROLES

## THE BIOTECH TOOLBOX: DBER PROJECT

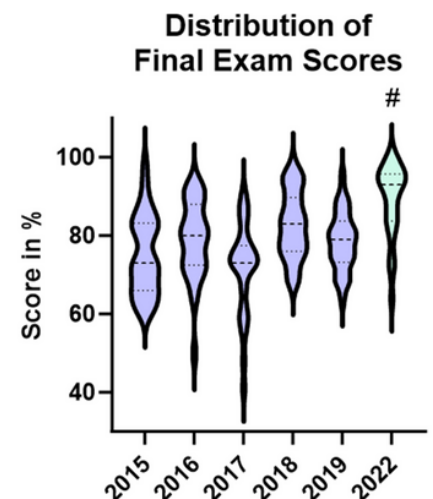
As evidence of my innovative and creative approach to teaching, I have created and studied the effect of a semester-long active learning strategy in the Animal Biotechnology course. The Biotech Toolbox is a project which engages students in a dynamic exploration of the biotechnology tools utilized in fundamental scientific research, through active reading. For each paper, students independently research and synthesize information about the key techniques utilized to add to their personal toolbox. The project reinforces understanding of the tools employed by scientists to answer questions in biotechnology far beyond the scope of rote memorization, fostering a more profound grasp of core concepts and enhanced scientific literacy. The project empowers students to build their own study guide over the course of the semester, as they are actively involved in curating their learning materials, thereby promoting a sense of ownership and self-directed learning. Finally, the project ensures that students are continuously interacting with the course material, which supports knowledge retention and application.

There are a total of 16 tools to include in the Toolbox, including somatic cell nuclear transfer, karyotyping, and immunohistochemistry, which are added over the course of the semester. The following components are to be included for every tool we cover, although the document style is decided by the student (Word doc, PPT, Excel Spreadsheet, etc.).

Tool	Purpose & Principle	Strengths & Benefits	Weaknesses & Limitations	Example from Manuscript	References
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I first implemented the Biotech Toolbox in the fall of 2022, and found that student outcomes, represented by final exam scores, significantly exceeded historic values. These results prompted further study: I began collecting data to evaluate the student impact of the Biotech Toolbox in the fall of 2023, under the CTL Active Learning Umbrella IRB. I have collected data correlating student assessment scores with their work on the Biotech Toolbox, I have determined that a significant link exists between student value perceptions of the project and their exam scores, and I have also conducted an analysis of survey responses ascertaining student perspectives of the project.

I intend to publish my findings in an open-access peer-reviewed science education journal, so that other instructors can adapt the Biotech Toolbox for their courses - my manuscript is currently in preparation. I also look forward to presenting my research during the *UGA CTL Spring Teaching Celebration* and at a *Lilly Conference for Evidence-Based Teaching & Learning*.



The 2022 cohort of ADSC 3130 students achieved a significantly greater average final exam score than cohorts in 2015 to 2019

This quote from a survey demonstrates the value of the Biotech Toolbox toward enhancing student **understanding of key concepts** and supporting **preparation for the future**. It also showcases the potential **applications of the project** and its structure in other academic contexts:

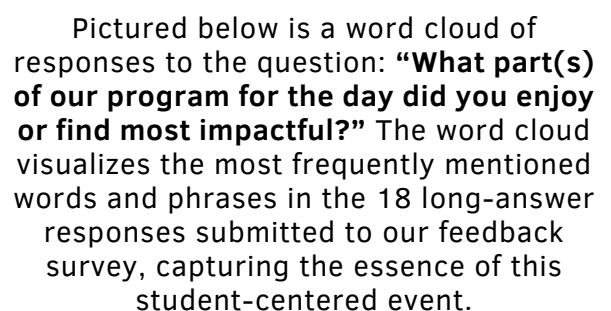
"Completing the Biotech Toolbox definitely helped me gain a deeper understanding of many of the techniques we had learned about in papers throughout the semester. It is a very useful tool. I think it is a very creative, unique, way in order to become more familiar with the concepts of this class. This class and the Biotech Toolbox helped me understand many things such as what stem cells do, why iPSCs are so useful, when to use a Western blot/PCR/RT-PCR etc. So many of these things have also come up and been discussed in my Cell Biology class that I am taking this semester. My Biotech Toolbox (and this course content in general) will be very helpful when studying for my final in there, and also if I end up doing some type of research in the future. I think the Biotech Toolbox structure could be used in another class by taking important concepts and doing the exact same thing of listing their purpose/principle, strengths, weaknesses, etc. This strategy just gives a better understanding when doing a deeper dive on concepts like this."



The Regenerative Bioscience (RBIO) Open House is an event that I designed and executed alongside Dr. Holly Kinder to introduce pre-health/science high school students and secondary educators in Georgia to regenerative bioscience. High school students often lack exposure to advanced STEM fields, particularly rapidly-evolving, interdisciplinary areas like RBIO. This event set out to fill that gap by offering an immersive experience that highlighted cutting-edge research in the field, and equipping teachers with the resources to better integrate RBIO topics into their curricula. The Open House provided our guests with a foundation in the core concepts of the field and an appreciation for the possible career outcomes of our program. Hosted by the University of Georgia's Regenerative Bioscience Center (RBC), the event fostered meaningful connections between over **55 guests, 22 graduate students, and 10 RBC faculty members**. This project exemplifies my commitment to community-engaged teaching and outreach, and illustrates my ability to employ pedagogical strategies beyond the college classroom.

- **Regenerative Bioscience Bingo**, an engaging game I developed to introduce key concepts in an accessible and enjoyable format.
- A **Stem Cell Culture Lab**, led by RBC faculty, where students observed and practiced fundamental cell-handling techniques.
- An **Exhibitor Fair**, where graduate students presented their research to our guests, providing an opportunity for students to engage directly with scientists.

The map pictured to the left illustrates the geographic distribution of registrants (pink bars) and attendees (blue bars) for the RBIO Open House across Georgia. Green shading indicates Georgia rural counties, based on 2021 designations from the State Office of Rural Health. The map highlights marketing reach and participation disparities, with greater representation from urban and suburban counties compared to rural counties. In total, **we reached 16 counties.**



AVAILABLE COURSE COMBINE  
LOVED ABLE  
REGARDING PROGRAM LIKE LAB CURRENT  
REGENERATION  
STUDENTS  
INTERACT  
KIDS REQUIREMENTS  
TALK LABS  
ONE TAKE GAME WORK  
FELT  
RESEARCH  
ENJOYED  
HANDS DAY  
GETTING  
IMPACTFUL JUST WELL  
HEARING  
BREAKOUT  
PANEL  
DIFFICULT  
HEALTH  
PROFESSOR  
USED  
SESSIONS  
LISTENING  
OUTSTANDING  
EXPLORE TALKED SECOND  
WAYS  
FLEXIBILITY  
INCLUDED AREAS  
OPPORTUNITY  
MORGANE  
PROFESSORS  
PERSONALLY  
MACHINERY  
ESPECIALLY  
PRESENTED  
QUESTIONS  
ENCOURAGING STATIONS THAT  
ALSO TABLES SEE ASK PEOPLE MUCH PATHS BOOTH  
CLASSES  
REALLY MAJOR  
GREAT PART  
RBC  
EXCELLENT LECTURES PUBLIC FEEL  
HALF END EXPLAINING LOOK  
ASPECTS BREAK