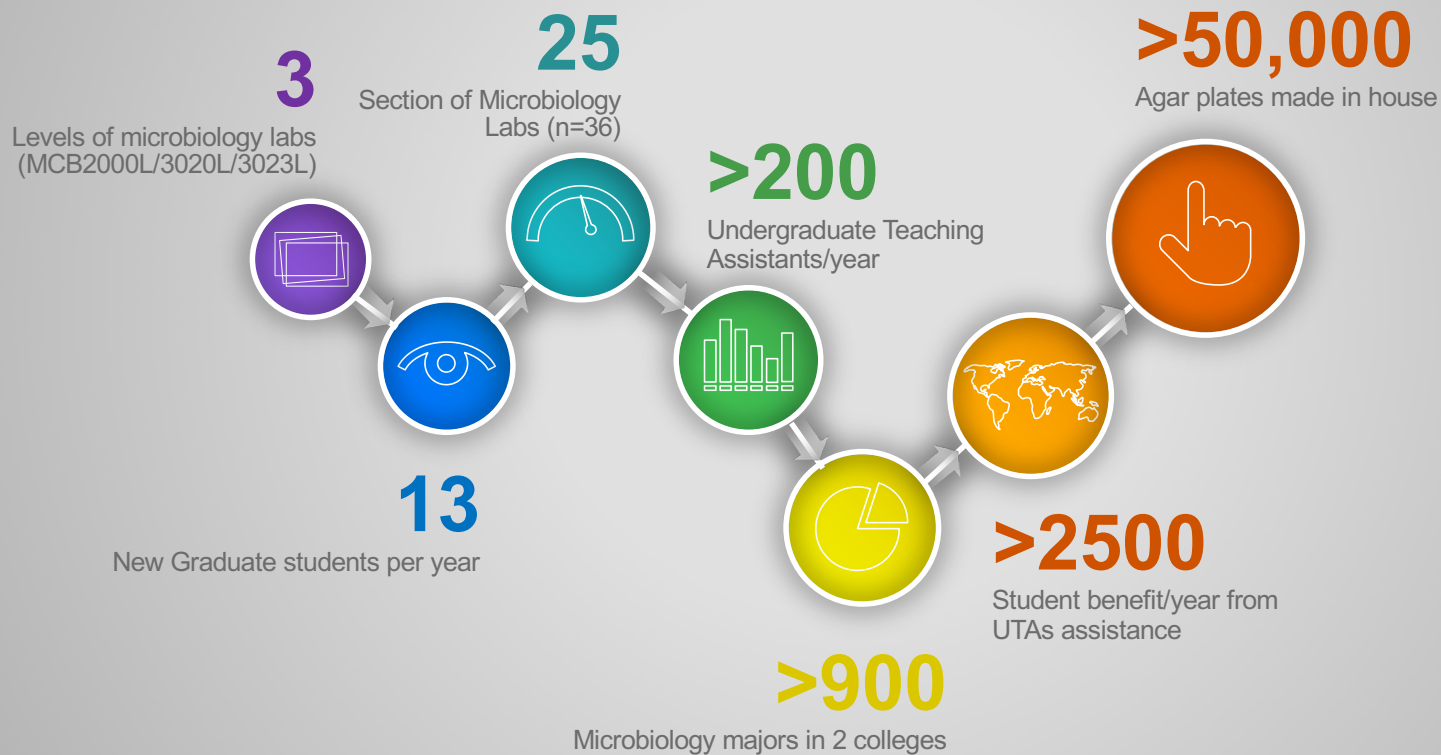


UF UNIVERSITY of
FLORIDA
IFAS
Microbiology and Cell Science

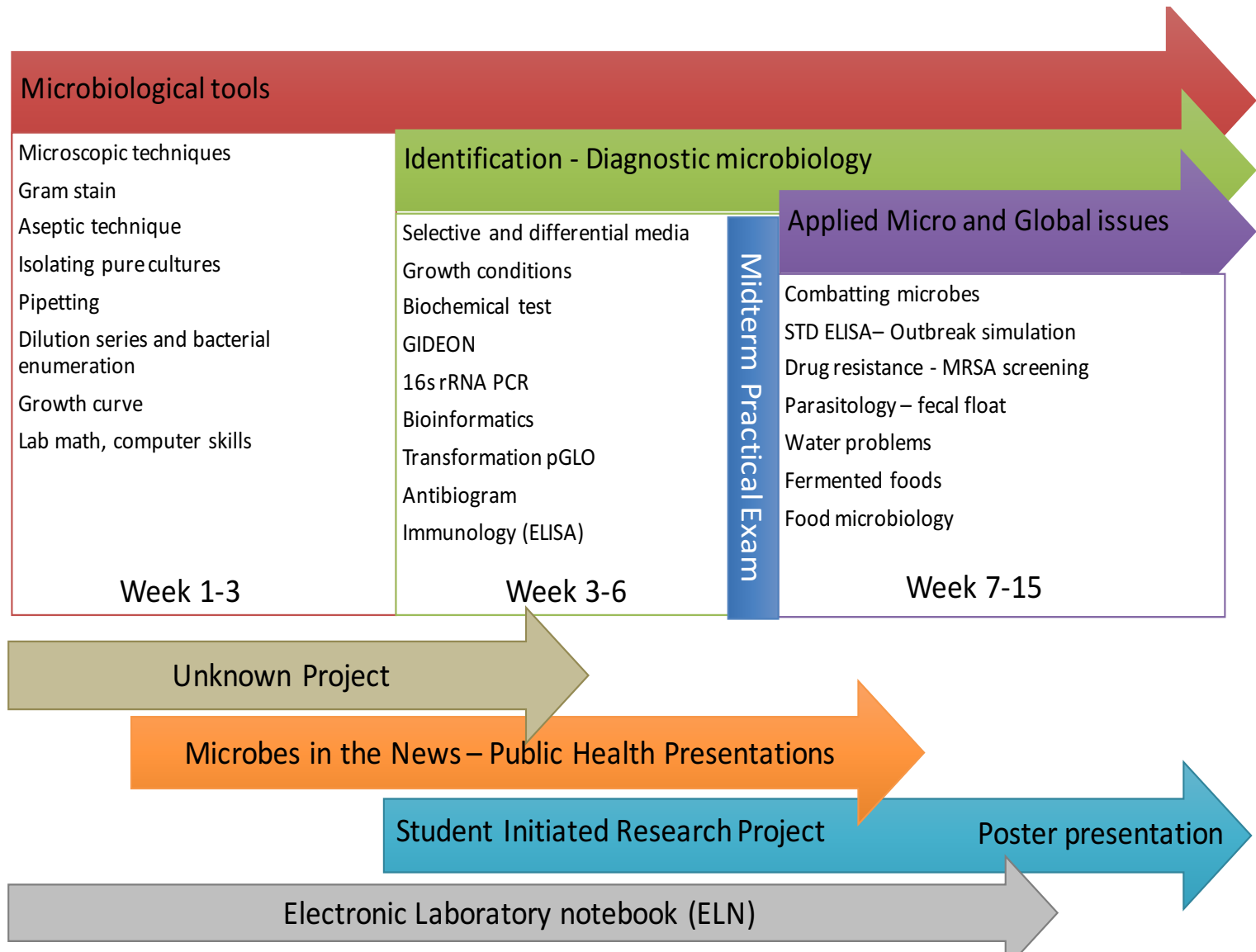
Invigorate the undergraduate teaching assistant experience

Monika Oli, PhD and Amanda Ojeda, BSc

It's an Endeavor – Microbiology Labs @ UF



Our Microbiology Lab Curriculum



Our Microbiology Lab Curriculum includes....

- Inquiry-based modules
- Active Learning
- Interdisciplinary
- Communication Skills
- Heavy use of Technology
- Bioinformatics foundations
- Research-Based Learning
 - Independent Research Projects
- Global Understanding
- Sense of Community
- Creativity
- Career preparation
- (Field Trips)



[Reinventing Undergraduate Education: A Blueprint for America's Research Universities](#)

Learning by teaching others is extremely effective - a new study tested a key reason why



Other models to prepare TAs for teaching?

Learning assistant model (Colorado) <https://www.colorado.edu/program/learningassistant/>

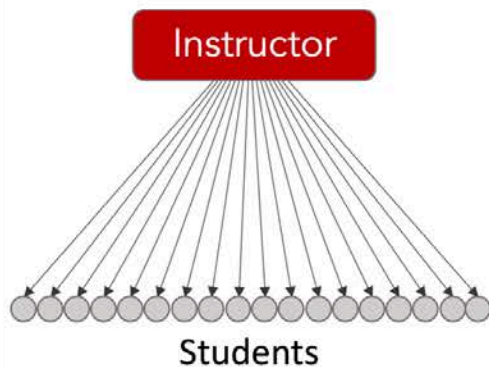
Learning assistant alliance <https://learningassistantalliance.org/>

Adaptations: UF and many others universities - ZOO4936 Biology Education Seminar

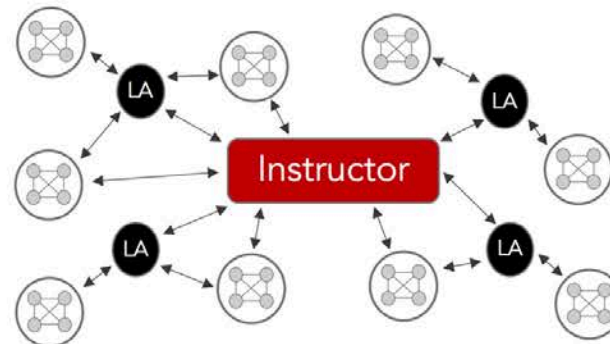
<https://biology.ufl.edu/files/BOT4935-ZOO4926-Biology-Education-Seminar.pdf>

Learning Assistants are undergraduate students who, through the guidance of weekly preparation sessions and a pedagogy course, facilitate discussions among groups of students in a variety of classroom settings that encourage active engagement.

Traditional Model



LA Model

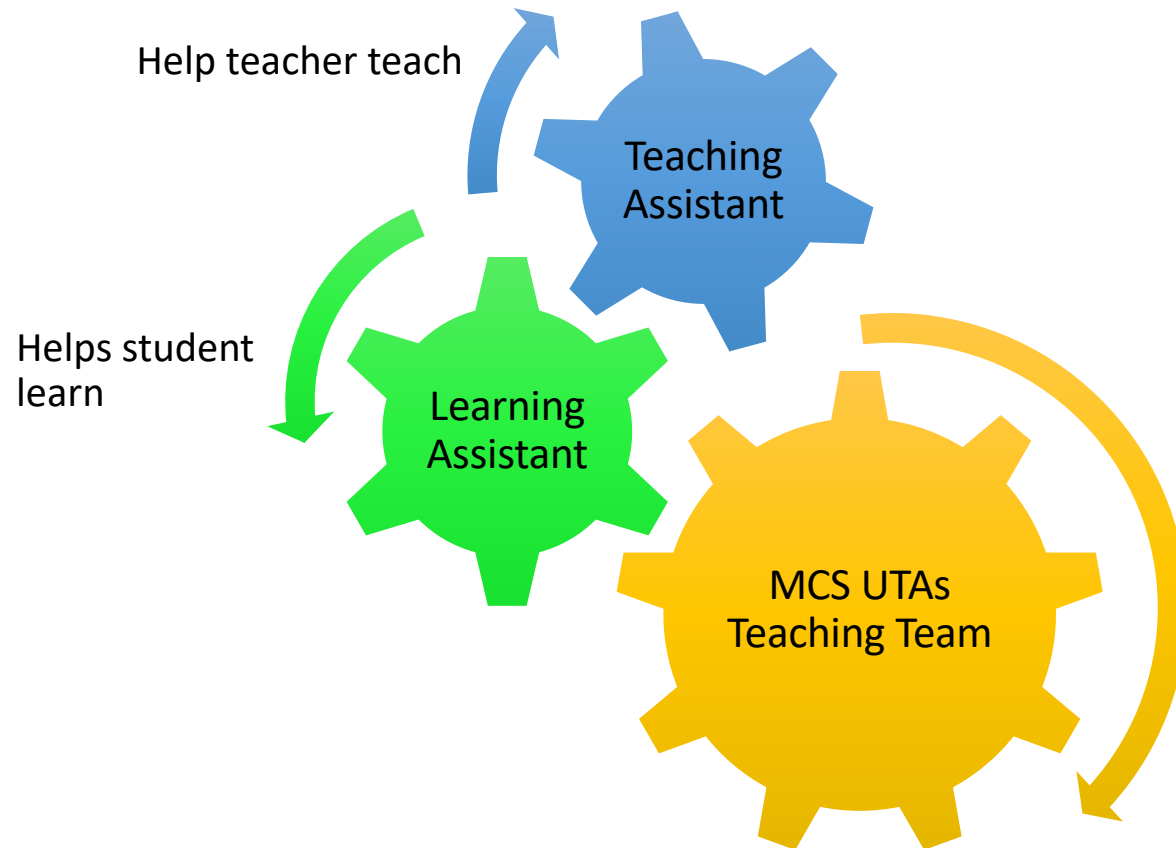


Pillars of the LA Experience



Learning Assistant Model of Teacher Education in Science and Technology, NSF Grant, 2006, U Colorado Boulder

Teaching Assistant vs Learning Assistant



Our integrated model

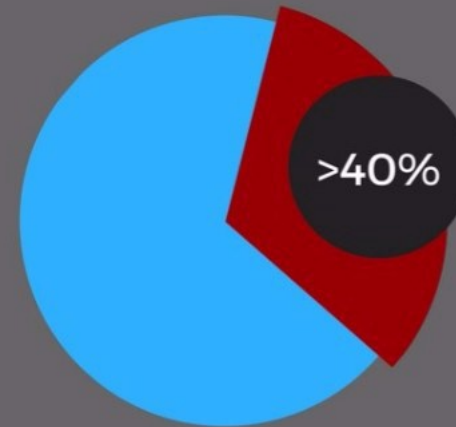
- Student Teacher
- Educator
- Subject expert
- Motivator
- Evaluator
- Listener
- Mentor
- Facilitator
- Counselor (through guidance and training, TA's can identify changes in student behavior and notify someone)
- Role model (mentorship)
- Share Enthusiasm
- Self Discovery
- Apprentice

Teaching is an art and science!

1st year PhD students in MCS

- Take classes
- Rotate in research lab
- Teaching assistant for 2 lab sections

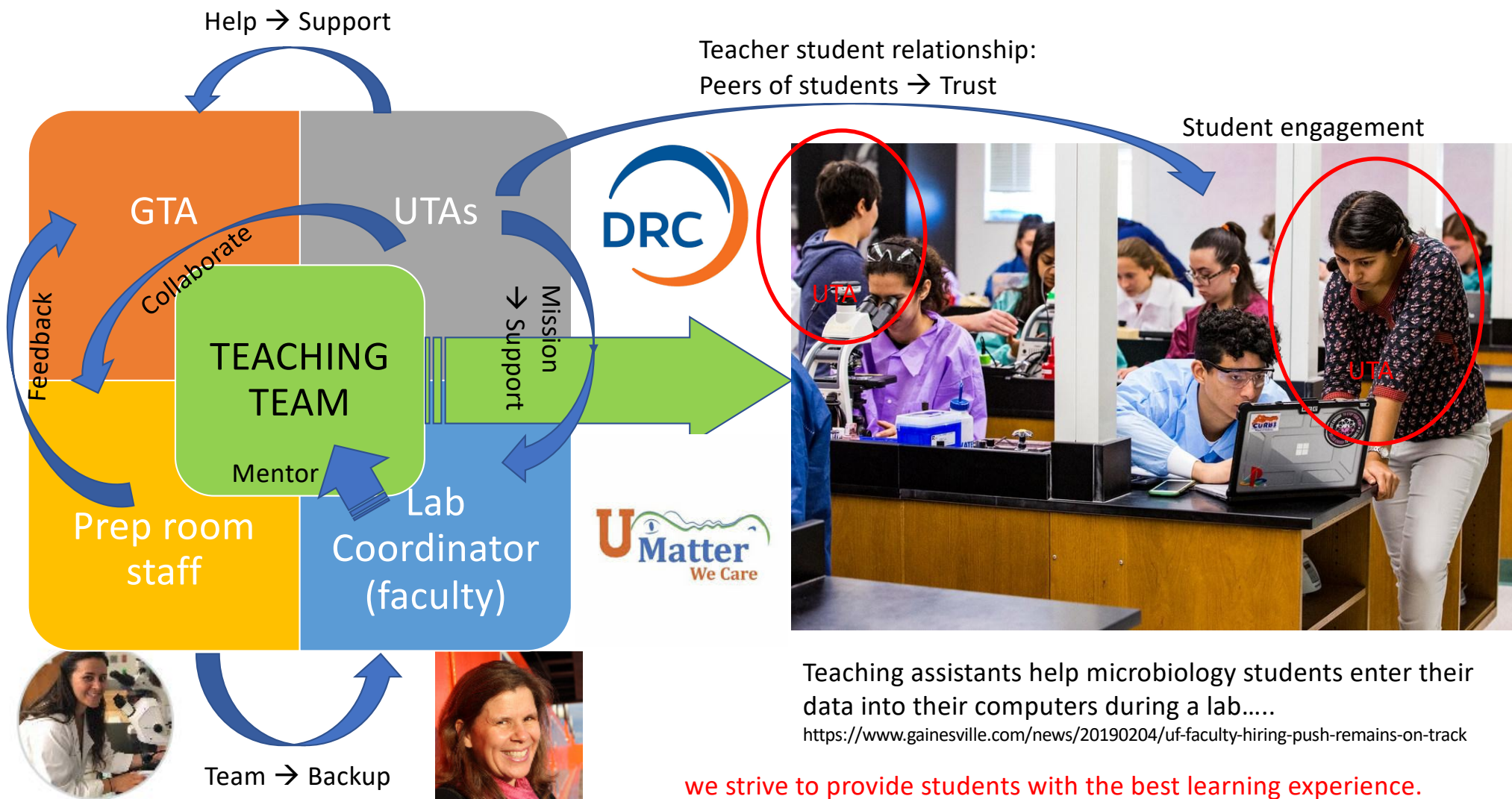
GRAD STUDENTS ARE STRESSED OUT



MORE THAN 40%
OF MASTERS AND
PH.D. STUDENTS
REPORTED BEING
MORE STRESSED
THAN THEY CAN
HANDLE

SOURCE:

1. Grad Resources - "Grad Student Stress Report 2010"
<http://gradresources.org/>



So you decided to become a UTA for Microbiology Labs.....

- Prerequisites
- Requirement - Expectations
- Application process (online app)
- Selection process
- Class registration (MCB4934 supervised Teaching) – or volunteer
 - Canvas course
- TA workshop (2 days)
- Lab duties

....sorry, we are already full.....

PREREQUISITE

You must have taken any of the microbiology lab (MCB2000L, 3020L, 3023L) – and should have enjoyed the experience

Application process

Microcell Web APPS
A Department of the University of Florida

TA online signup form -

We are already full for Fall 2019 TA opportunities. Please contact Dr Oli (moli@ufl.edu) between Aug 13 and Aug 19 to see if any TA spots have opened up

TA positions will be filled on a first come first serve basis – so sign up early.

MCB4934 Supervised Teaching (1-2CR)

Supervised undergraduate teaching assistant will be part of the dedicated MCS teaching team to enhance the high level of instruction in labs, lectures or online courses. This opportunity provides advanced students with instructional and leadership experience valuable for their educational training and future careers.

Evaluation of Learning

Activity Types	Percent of grade
Attend workshop prior to labs and complete online training	10
Punctuality and attendance of labs	10
Execute lab responsibilities and follow dress code	20
Execution of assigned tasks like grading, communication with GTA/students, office hours	20
Anonymous student and GTA feedback (numerical value from Qualtrics survey)	10
Teaching Module	10
Teaching ePortfolio and reflection	20
TOTAL	100

Welcome to the Microbiology and Cell Science TA Team!


[Announcements](#)

[Syllabus](#)

[Modules](#)

[MCB Staff](#)

Monika Oli, PhD
Room 1049
moli@ufl.edu



Welcome to Microbiology and Cell Science TA Team,

This canvas site is designed for you to navigate and grow in your role of teaching assistant, graduate and undergraduate. This collection of resources will familiarize you with the microbiology lab material, training obligations and teaching tools. We added further information, some as review and some to provide ideas to make your classroom the best learning environment possible.

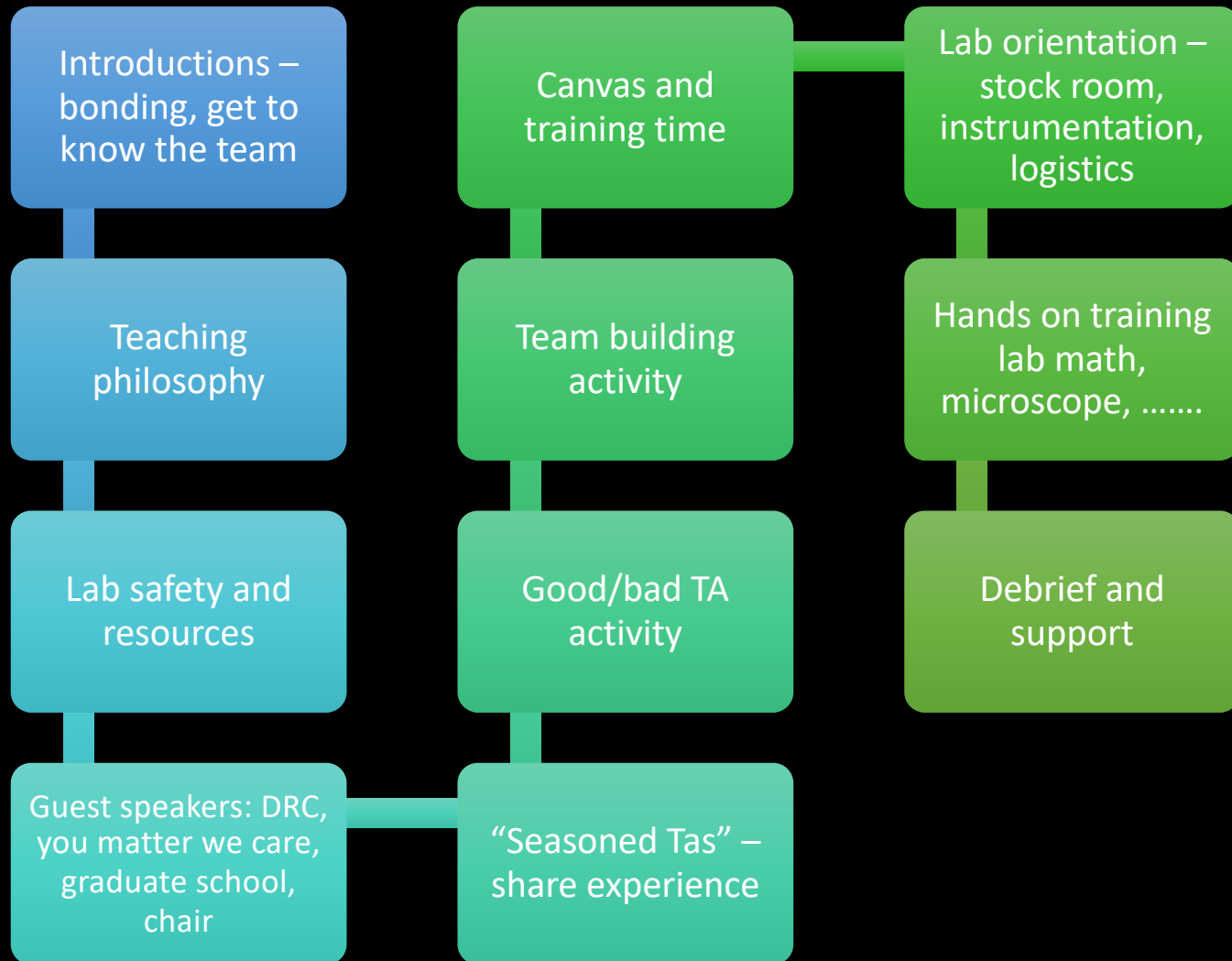
Teaching is a lot of fun, but a lot more challenging than it appears from the outside :)

Contact information: Prep Room 1029 Phone 352-392-4096

Amanda Ojeda, BSc, Scientific Lab Manager (Room 1029) ao12345@ufl.edu

Adileidy Quero, OPS Assistant (Room 1029) adileidy7@ufl.edu

TA workshop (2 full days for GTAs and UTAS)



UNRESPONSIVE NOT UNDERSTANDING SLEEPY
CONDESCENDING
INCONSIDERATE
APATHETIC BEING LATE
POWER-HUNGRY STUPID NOT ON TIME SASSY NOT HELPFUL
UNCARING LAZY MEAN YELLING
QUIET RUDE GRUMPY
NOT CARING UNPREPARED
NOT PATIENT

What
makes a
bad TA?



GTA –
weekly
meeting

Review upcoming teaching material, refresh experiments

Discuss students issues

Active learning strategies

Professional development

Moral support - mentoring

UTA - GTA
online class -
semester



TRAINING –
DECISION MAKING



PROFESSIONAL
COMPETENCIES



USE
INSTRUMENTATION
AND EQUIPMENT



TEACHING TIPS &
EXPERIENCE (PEDAGOGY)



ELEARNING PLATFORM
CANVAS AS
INSTRUCTOR



MENTOR
ACCOUNTABILITY



E-PORTFOLIO –
TEACHING REFLECTION
CREATIVITY



MENTAL HEALTH
AWARENESS



QUANTITATIVE SKILLS



GLOBAL APPLICATIONS



REAL LIFE APPLICATIONS



TECHNICAL SKILLS

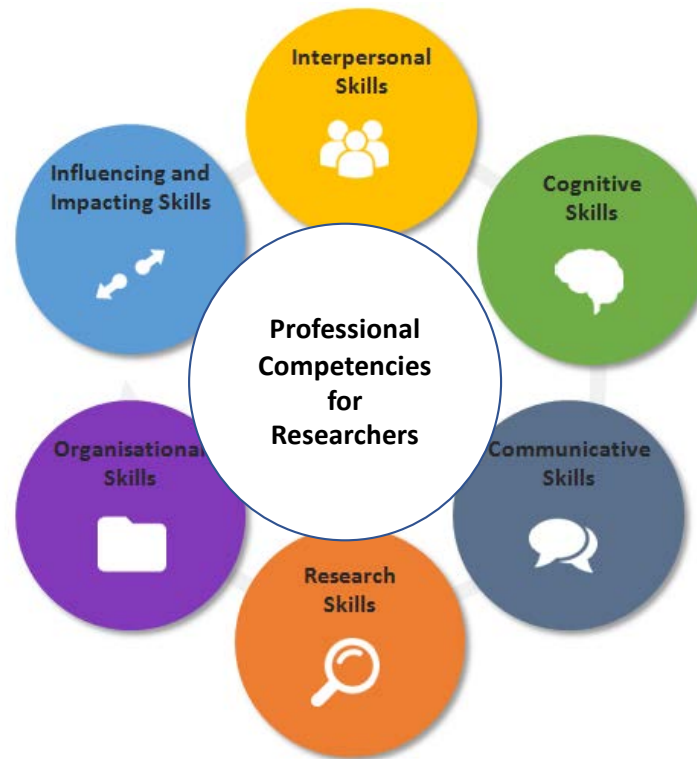
Professional competencies

- Communication (oral and written)
- Teamwork and interpersonal skills
- Leadership
- Creativity and problem solving
- Professionalism and productivity
- Global perspective
- Motivation
- Empower others
- Manage change
- Interpersonal awareness
- Collaboration
- Information Gathering
- Analytical Thinking
- Conceptual Thinking
- Strategy
- Technical Expertise
- Initiative
- Innovation
- Decisiveness
- Self Management
- Thoroughness
- Flexibility
- Stress Management

Research vs. Teaching Experience

Research

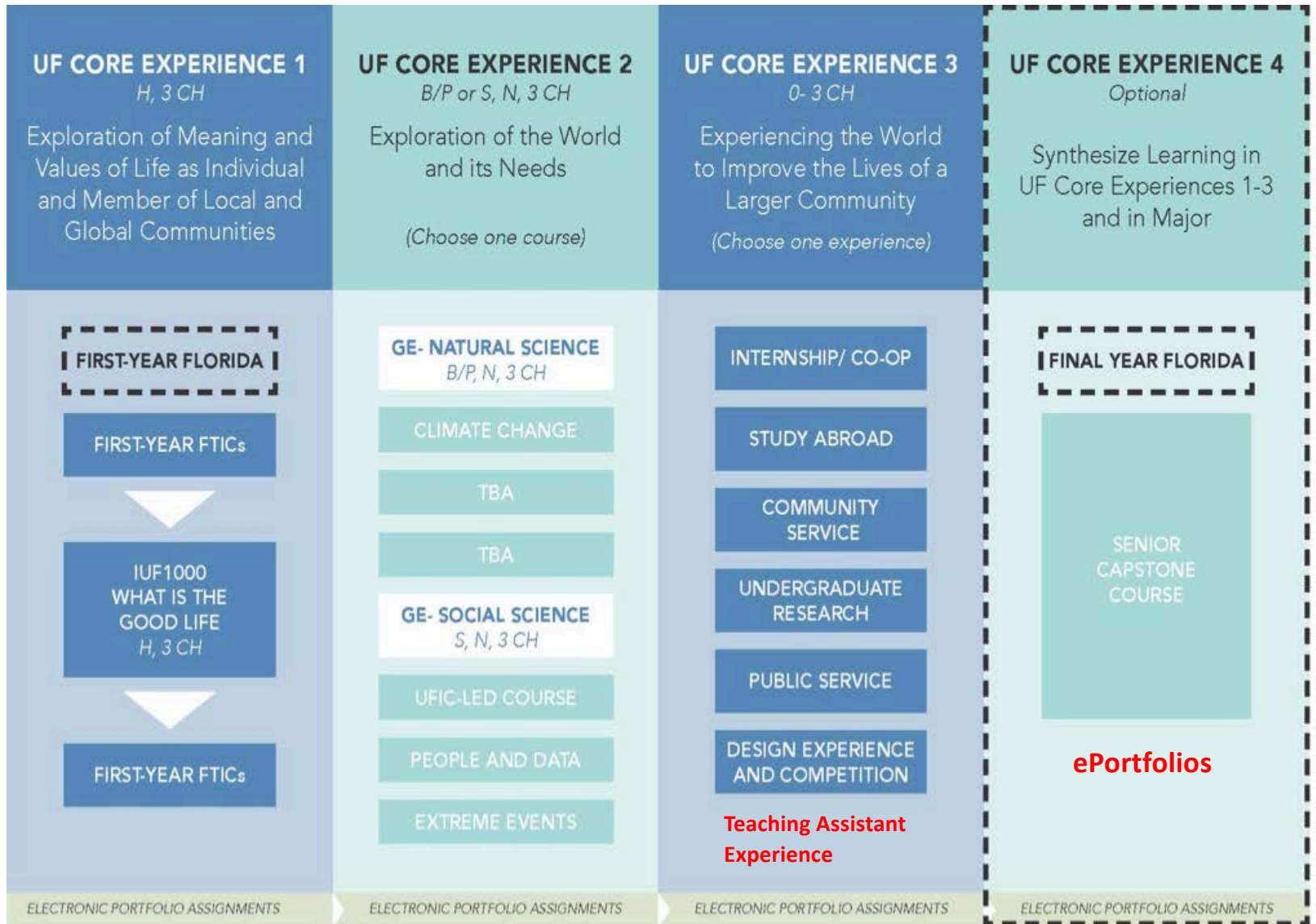
- Report writing
- Data collection
- Analysis of information from different sources
- Finding information off the internet
- Critical thinking
- Planning and scheduling
- Critical analysis



Teaching

- Patience
- Adaptability
- Imagination
- Teamwork
- Risk Taking
- Constant Learning
- Communication
- Mentoring

UF Quest



ePortfolio → Teaching Reflections

Sierra Blashock [HOME](#) | [RESUME](#) | [STUDY ABROAD](#) | [TEACHING EXPERIENCE](#) | [More](#)
University of Florida



Welcome!

[MY RESUME](#) [STUDY ABROAD](#) [UF UTA](#)

Hello! My name is Sierra Blashock, and I am a microbiology and cell science major at the University of Florida. I am also minoring in Spanish and Japanese. Feel free to explore this website and learn more about what I have been doing!

Sierra <https://sierrablashock.wixsite.com/mysite>

Danielle <https://danichism.wixsite.com/teachingportfolio>

Cole <https://coleferguson317.wixsite.com/eportfolio>

From Student to Teacher

"We cannot hold a torch to light another's path without brightening our own."

— Ben Sweetland

My Experiences

Spring 2016: MCB 3023L

During my first semester as a UTA, I assisted in the microbiology lab required only for microbiology and cell science majors. This was great because the students were enthusiastic about the material and eager to learn the techniques. Therefore, I was able to quickly develop strong skills in explaining the laboratory techniques since the students would ask again if my explanation was not clear enough the first time. I also gained much more respect for the teaching profession because I was able to experience first hand all of the work that goes into teaching such as material preparation, assignment and assessment development, grading, and other challenges.

Fall 2017: MCB 3020L

This past semester, I was a UTA for the microbiology lab that non-microbiology majors take. I decided to UTA for this version of lab because there was a smaller time commitment required than the lab for majors. This semester was interesting because I was working with a completely new teaching team, and the students were not as enthusiastic about the material or lab techniques. Most of the students who take this version of the lab take it merely to fulfill a requirement for their pre-professional track rather than out of actual interest in microbiology.

Despite these challenges, I believe that I was able to grow even more as a UTA. Using my precious experience as a UTA, I was able to guide the new members of my teaching team in how to interact with students and best explain the material. In addition, since the students this semester were less likely to ask for clarification about instructions, I learned to be more aware about the subtle signs that students give off when struggling with a concept or technique. I was also able to fine tune the teaching techniques that I had gained the previous semester through additional practice.



Cole Malcolm Ferguson
Born: March 17, 1999
Hartford, CT



August 2003
My dad is traded to a new hockey team so we move to Ingolstadt, Germany. I attend kindergarten and first grade, speaking basic German.



August 2013. First Day of High School. Over the next four years, I participate in tennis, cross country, and band. I volunteer at Give Kids the World village over the summer.



August 2000
My family and I move to Fribourg, Switzerland. My sister is born soon after we arrive. I go to preschool, where I start speaking conversational French.



August 2006
After my dad retires from hockey, we move back to America. We spend the next two years in Philadelphia.

July 2008
My family and I move to Orlando, FL. I enter fourth grade. I begin playing tennis.



Summer 2017. I graduate high school. Three months later, I move into my dorm at the University of Florida.

January 2018
I meet Dr. Hepple and start working in his lab. I process data to study the effects of smoke on neuromuscular junctions

May 2018.
I fly out of Orlando to study abroad in Europe. This is my first time back since 2006. Learn more about my trip under "Global Experience".



Fungi Scavenger Hunt



Mycorrhizae

- Location: the shaded, swampy woods near the Reitz Union
- symbiotic relationship between fungus and plant roots
- promotes nutrient uptake from soil
- essential for plant photosynthetic efficiency



Mold

- Location: the peel of an orange in a wooden box
- can spoil food & damage property
- can cause disease and allergic reactions



Basidiomycota

- Location: the stump of a tall Cypress tree in Yulee Area
- Mushrooms are sexual reproduction structures
- decompose wood
- essential in carbon and nitrogen cycles

Teaching Statement

As a teaching assistant, my philosophy revolves around helping make the learning experience for students as impressionable and absorptive as possible. As a student myself who often wonders "Why?", I hope to help students be able to obtain the knowledge in order to ask why about things too. I truly believe questioning "Why?" certain processes are done in ways shows true curiosity of understanding. I believe that this thought process is how research is done, and we need the foundational knowledge in order to question and think creatively to spark new discoveries.

This is also why I chose to teach a laboratory class, where learning and hands on skills are combined. I sought to make sure students u **Study in progress:** d
fundamer **Invigorate the teaching assistant experience approved as IRB201900858** onal
diagnosti **Collect data on teaching experience for future career preparation and grit development** data would
be more accurate than the traditional, however the traditional tests were still important quick tests that did give sufficient
information on the bacterium. In another instance, I told the students before an upcoming midterm to understand what the
traditional diagnostic tests are showing because the point of practicing identifying the tests in class was also to prepare for
the midterm where examples would be given and students would have to analyze the tests themselves.

My strengths as a teacher include **attentiveness**, in which I am always attentive to which students in a large class room need help. I am **responsible**, in which I am always on time to class and prepared for the day's lesson, including making sure to submit quizzes to the class on time as well. Most importantly, my strengths include that I am **adaptable** to the student's

TEACHING PHILOSOPHY



unique style, philosophy, and method of teaching

How to pass on
MY teaching
philosophy?

UTAs help significantly to pass on
my teaching philosophy to GTAs
because they have taken the labs
before

UF is #8

- The student-faculty ratio at University of Florida is 19:1, and the school has 48 percent of its classes with fewer than 20 students.
-NOT in most STEM undergraduate classes



As University of Florida aims for Top 5, here are reasons why



▲ HIDE CAPTION

Students studying microbiology and cell sciences enter data they collected during their lab into the computer on Jan. 24. Class sizes and graduation rate both are significant factors in determining a university's place in national rankings. [Lauren Bacho/Staff Photographer]

Our student instructor ratio is 6:1 in the microbiology lab

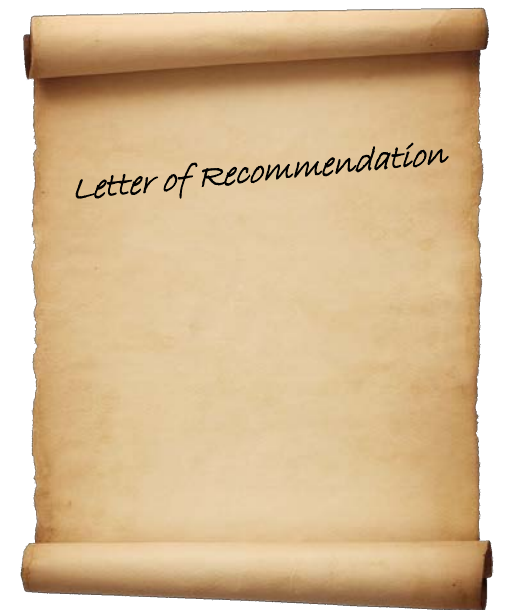
.....but UTAs are NOT officially counted to improve the ratio

“The TA experience can be an outstanding way to learn the art of teaching and to have a positive influence on many students”



I get feedback,
inspiration and new
ideas from UTAs

Teaching is a 2-way street





What I tell my UTAs.....

our program would
not function without
them!



Questions

Invigorate the undergraduate teaching assistant experience

Monika W. Oli*, Department of Microbiology and Cell Science, University of Florida

Amanda E. Ojeda, Department of Microbiology and Cell Science, University of Florida

(poster or oral presentation)

Inquiry-based laboratory curricula employing active learning strategies have proven to enhance deep learning, learner-centeredness, and critical thinking. However, it demands a very different teaching strategy and also more one-on-one engagement between the students and the instructors. Per semester, we offer ~25 lab sections, made of 36 students each, to over 40 majors on campus which demands considerable student-instructor ratio (~ 6:1) and adaptability to meet the needs of different students' backgrounds and educational pursuits. In order to effectively teach these modern, cutting-edge microbiology labs, we have established "Teaching Teams", consisting of graduate teaching assistants (GTAs), undergraduate teaching assistants (UTAs), and lab management. To formalize this approach, we have developed a curriculum that further enhances the UTA's experiences by training them in scientific and professional competencies, familiarizing them with the use of instrumentation and advanced technology, helping them develop interpersonal skills, and enhancing their teaching aptitude through classroom experience and online modules. The culmination of the semester is the creation of an ePortfolio with a personal reflection on their teaching experience. UTA contribution to the teaching team heightens the students' laboratory experience by providing individualized support throughout the learning process and creates a more nurturing atmosphere. This multidimensional teaching experience positively impacts the UTA's future profession through the development of lifelong skills not obtained in a traditional student role. Our UTA opportunity makes students more empowered and competitive for STEM graduate and professional degree applications.

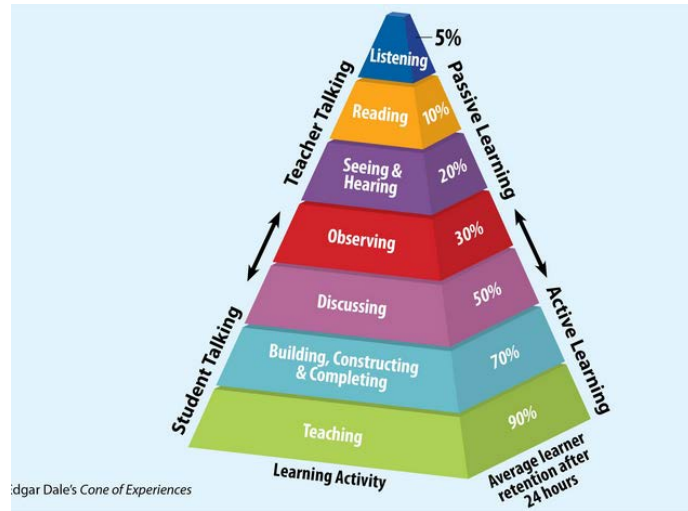
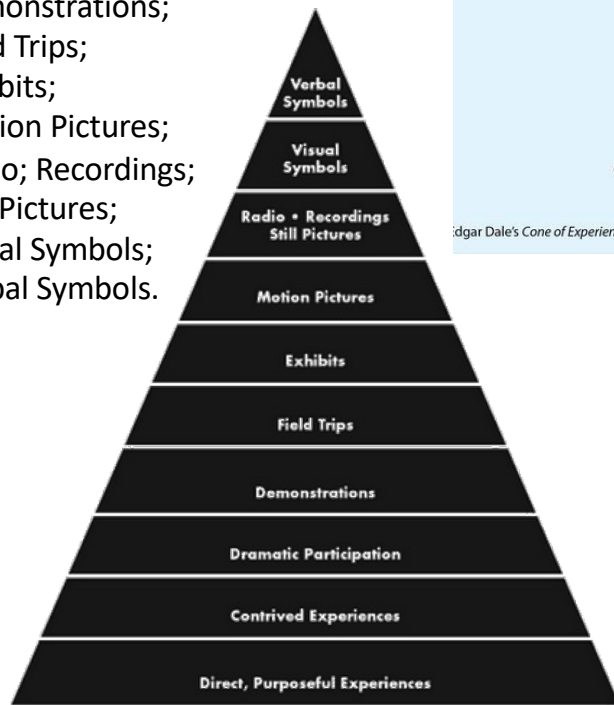
The Ecosystem of teaching

Publish

- <https://evollution.com/attracting-students/retention/i-dont-care-what-you-know-until-i-know-you-care-why-caring-campus-retain-more-students/>
 - Triplet https://evollution.com/revenue-streams/distance_online_learning/the-stem-education-landscape-identifying-the-major-barriers-to-online-stem-degree-programs/
- <https://er.educause.edu/columns/transforming-higher-ed>

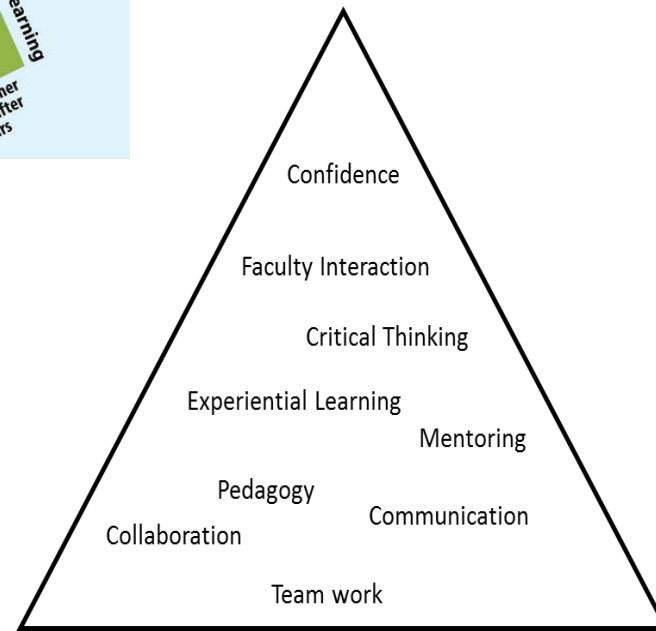
The original labels for Dale's ten categories are:

- Direct, Purposeful Experiences;
- Contrived Experiences;
- Dramatic Participation;
- Demonstrations;
- Field Trips;
- Exhibits;
- Motion Pictures;
- Radio; Recordings;
- Still Pictures;
- Visual Symbols;
- Verbal Symbols.



Edgar Dale's Cone of Experiences

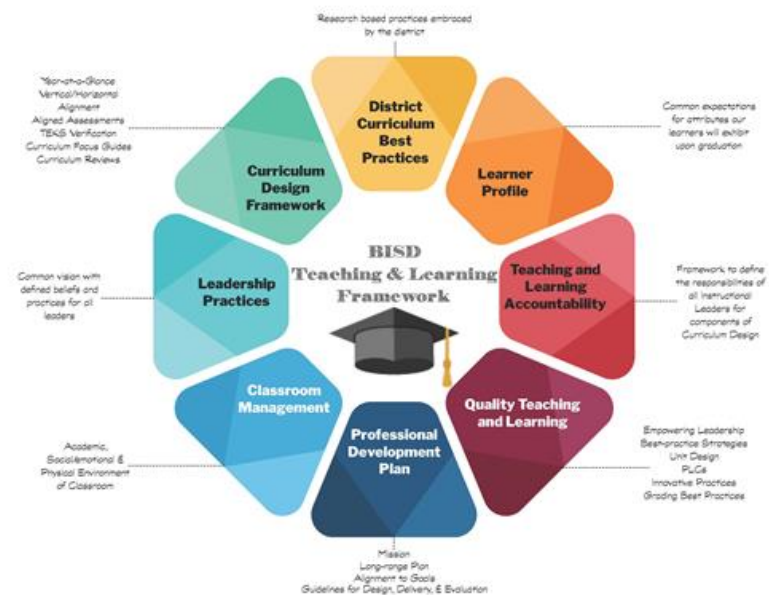
Personal Leadership

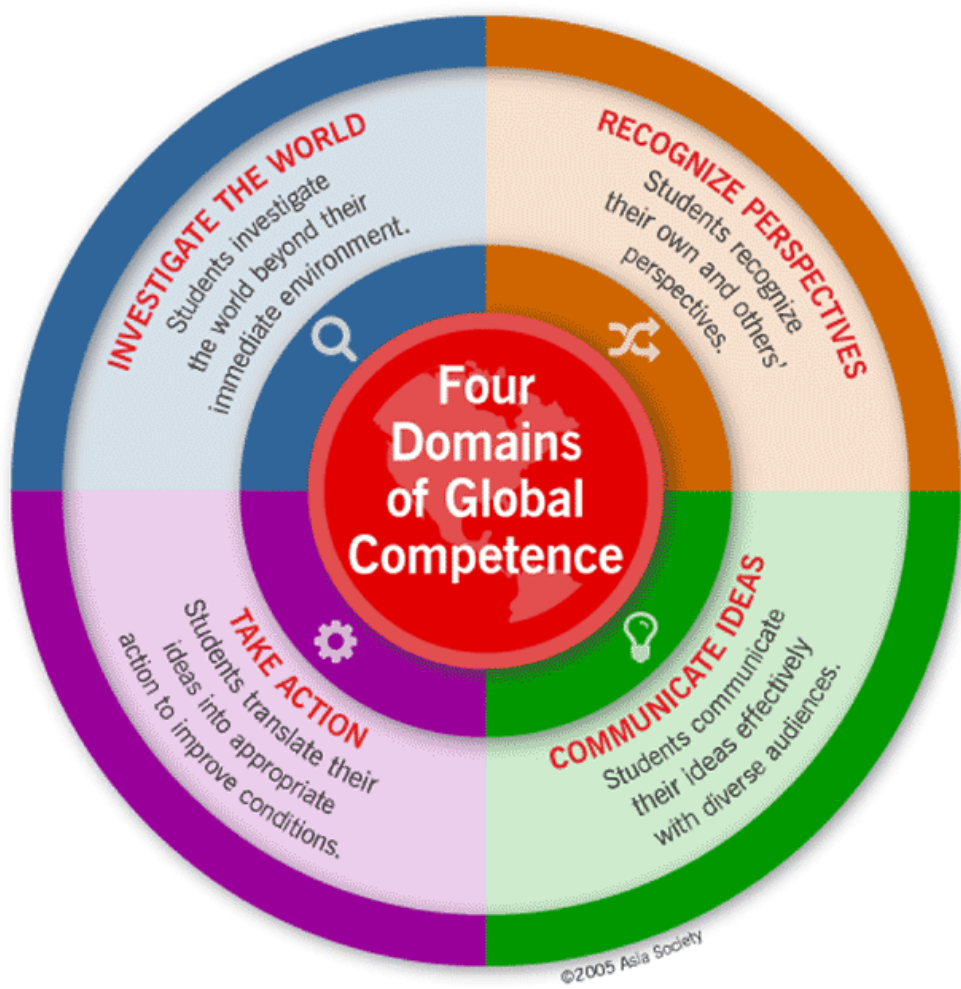


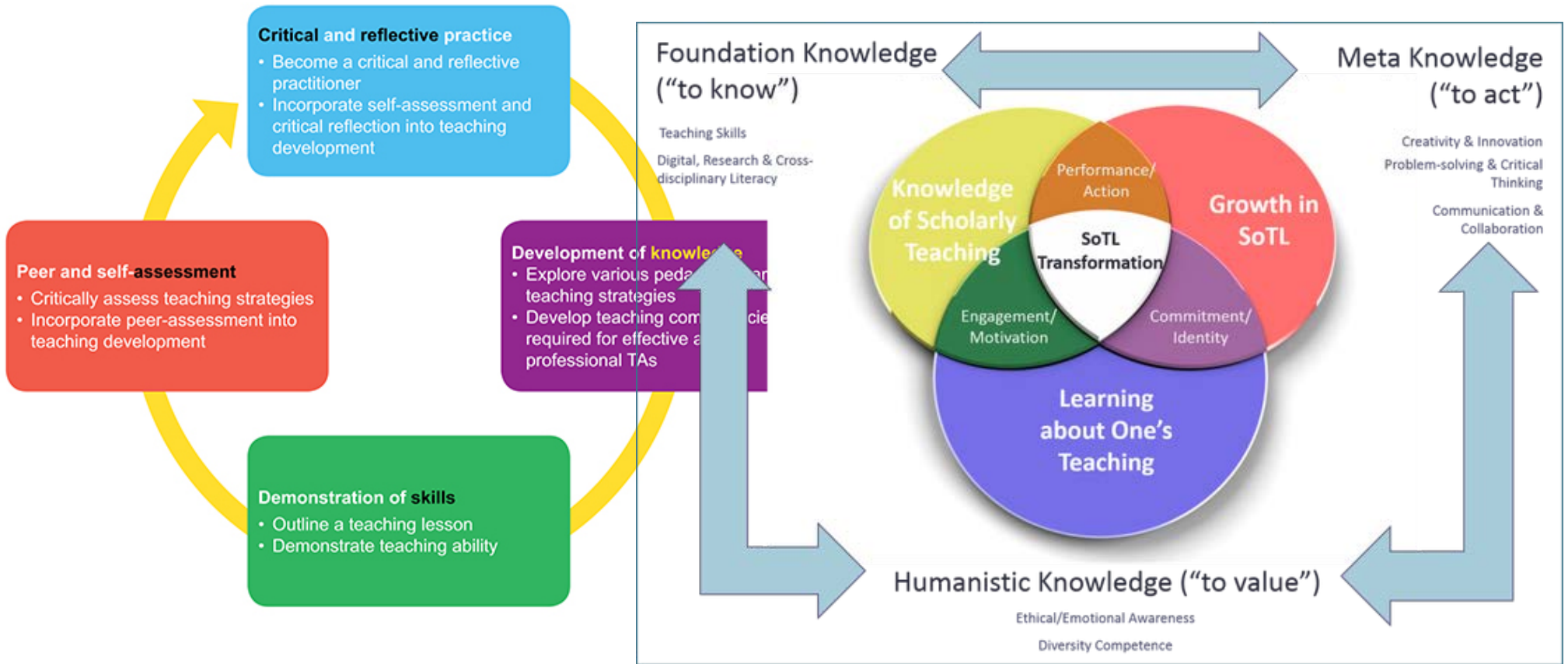
Teaching Team

Subject Matter Expertise

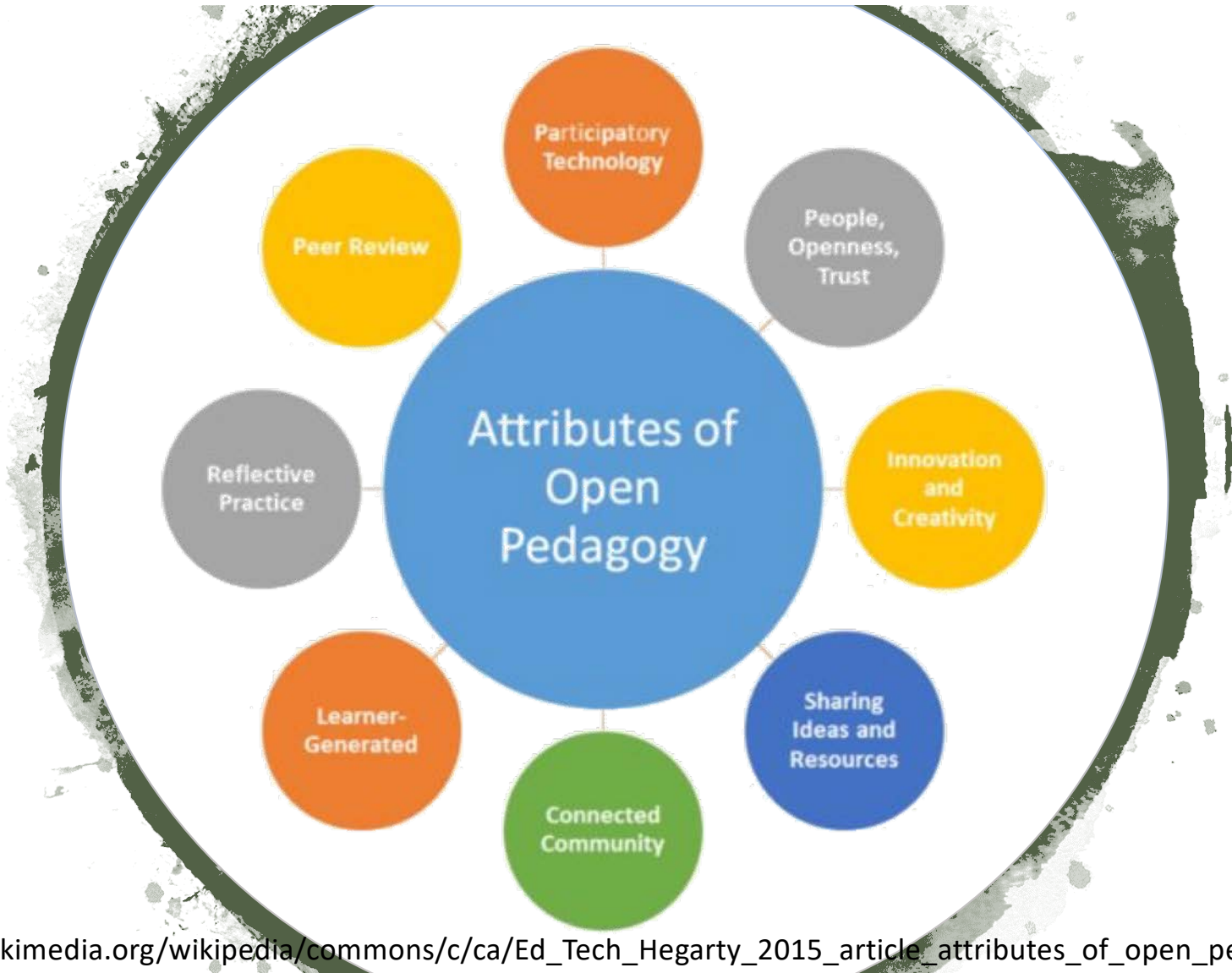
<https://web.archive.org/web/20051228074200/http://www.visualbeing.com/category/presentation-facts/>







<https://educateria.com/tag/conceptual-framework/>



https://upload.wikimedia.org/wikipedia/commons/c/ca/Ed_Tech_Hegarty_2015_article_attributes_of_open_pedagogy.pdf