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Assistant Professor

Application e-portfolio for the Ogden College Faculty
Award for Teaching

Biology Department

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Introduction

It is truly an honor to be nominated for the Ogden College Faculty Teaching Award. I was a master's student in the biology department at WKU, which served as the epicenter of my initial involvement in all aspects of the research process. During my time here as a student, I quickly became enamored with the department, the college, and "The Hill," and I am gratified for the continuing opportunity to give back to this community. I strive every day to afford my students the same opportunities for transformation through academic, professional, and person growth. Over the past three and half years, my pedagogical efforts have been centered on improving instruction in the Biology Department through development of an innovative, inquiry-based learning environment in our introductory courses. My primary mission is to improve the biology major student experience, leading to higher student outcomes and increased retention.

This portfolio, designed to highlight my achievements thus far, is easiest to navigate if viewed online [at this link](#). Additional supporting documents (from my continuance files) have been added where appropriate to provide examples and evidence. These hyperlinks appear in red throughout: Nonunderlined links are to internal pages in this dossier while underlined links are to documents in an online database. Depending on your platform, use the CTRL+ right click function and select "yes" for access. While navigating, you can select "open in a new tab" to save your place in this document.

[Nomination Letter](#) • [Concept Map of Objectives](#) • [Timeline for Revision](#)

Personal Statement

Teaching Philosophy

My role as an educator is to guide in the acquisition of knowledge, inspire critical analyses, and engender interest and enthusiasm for biology and biology-based careers. I strive to produce students who have the tools and capacity to accomplish their goals and meet their obligations to themselves, their discipline, and the broader community.

Students must be met where they are. The techniques that “worked for us” are not enough to meet the needs of our students. Students come to us with content gaps and anxieties we need to identify and address for optimal learning. We should alter our plans to meet their needs.

Students learn better when they feel heard and cared for. We all care about our students, but we need to show and tell them that this is the case. I respect their opinions and experience. I give them a voice in my classes. I let them behind the curtain and explain why I make the decisions I do. I let them know I care about them as people, not just students.

Diversity, equity, and inclusion must be integrated into the classroom. DEI is an important part of ensuring all students feel they have an opportunity to learn and achieve the goals they have set for themselves. The founders of biology were largely male, white, and privileged. Part of my job is to ensure students understand that NOT fitting this mold does NOT preclude their success.

Inquiry is a valuable tool in the acquisition of knowledge. Being “taught” is not the same thing as learning. Authentic acquisition of knowledge occurs when it is pursued for a higher purpose; to solve a problem or to answer a question. Inquisition is the heart of scientific discovery. I use it as a tool to teach not just the process, but the language and the concepts of biology.

Gateway courses can set a student up for success. Introductory courses are a place to build not just content knowledge, but also the soft (but hard) skills of time management and effective study. Students must develop a philosophy of knowing and self-advocacy to carry them through the rest of their time on The Hill. I believe in a growth mindset. I want my students to leave feeling confident and positive about their major/career choice and having grown as students.

I strive to serve as a catalyst for change. No matter how effective, change cannot live in a vacuum. I believe in documenting and sharing successful strategies with my department and the university. Learning from one another is the best way to ensure our students receive an optimal education throughout their time at WKU. Beyond WKU, it is my responsibility to communicate my endeavors with the wider post-secondary pedagogical community through scholarly activities.

Constant adaptation is required. I do not believe in a one-size fits-all pedagogy, nor that classes are ever truly “done.” We should not chase after the hottest new technique without ensuring it is a match for our content and our students. We should always be open to professional development and learning new strategies and effective practices. If they are a match, we should always be willing to revise our courses to best meet our students needs.

Goals

This is the three- and half-year mark in my efforts to advance instruction in the Biology Department through development of an innovative, inquiry-based¹ learning environment in our introductory courses. My primary mission is to elevate the biology-major student experience, leading to improved student outcomes and increased retention. In pursuit of this mission I have developed seven primary goals: 1) to gain familiarity with our introductory biology labs and lectures; 2) to

¹ I use the term “inquiry-based” throughout this document to reference all pedagogical techniques leading to a more open, inquisitive, and student-led classroom, including problem- and project-based learning techniques.

provide a quality educational experience to all my students; 3) to identify needs and implement new practices and curricula; 4) to participate in professional development; 5) to support and advise graduate teaching assistants and biology students; 6) to collect data from faculty, TAs and undergraduates regarding their performance and experiences in our introductory courses,² and; 7) to find service opportunities in alignment with my pedagogical activities.

Practices

The practices I have put in place to meet these goals provide **evidence of my effectiveness and ability to motivate and inspire students in and outside the classroom**. I have taught 4 large (N = 131-181) sections of BIOL 120 Biological Concepts; 1 section of BIOL 120 Honors; 13 sections of BIOL 121 Cells, Metabolism, and Genetics; and 9 sections of BIOL 123 Evolution, Diversity, and Ecology. In S20, I developed and taught a new course, BIOL 369 Cooperative Education in Biology - Learning Assistant Co-Op. Over the past three years I have coordinated BIOL 121 and 123: supervising 34 graduate teaching assistants,³ two undergraduate teaching assistants, and two faculty TAs. I have taught > 1,200 students in my own courses and managed just under 3,500 students across over 100 sections of biology lab. A syllabi exemplar is available in [Figure 1](#), as well as links to the current syllabi for each course.

I have **consistently demonstrated superior teaching**. Student evaluations reveal I provide a quality learning environment ([Figure 2](#) and [Figure 3](#)). Student comments and teaching evaluations are also positive ([Figure 4](#)). Despite the unique challenges presented by COVID-19, my student evaluations ([Figure 5](#)) and comments ([Figure 6](#)) remained high and positive. Overall, my scores are above the college and departmental mean in each category for each course. In S19, I was the Alpha Delta Pi Faculty Member of the Year and received the Ogden College Junior Faculty Teaching Award. In S20, I was the Alpha Omicron Pi Faculty Member of the Year and a CITL Teaching Honors Nominee.

My innovative practices **typify the highest ideals of pedagogy**. Over the past three-and-half years, I have identified needs and implemented new methods and content in BIOL 120, 120H, 121 and 123, and developed a new BIOL 369 courses, all based in current pedagogical theory. In year one, I laid the groundwork for increased inquiry in the biology labs. I determined several areas where logistical changes could provide a more systematic presentation of information, and where adapting new teaching methods could increase organization and efficiency and enhance student access. These changes were implemented, augmented, and fine-tuned in year two. I created and curated supplemental content to further independent exploration of concepts and focused on TA preparation. Because teaching assistants play a major role in the success of our general biology lab curricula, their capacity to deliver content has been at the forefront of my revision process. I have set the groundwork for open and consistent expectations and communication through weekly meetings, and I have created Best Practices Protocols, pre-and post-course checklists, teaching manuals, and Blackboard organizations to house communications and content and host an annual TA Workshop with Dr. Steve Huskey.

In years two and three, I focused on BIOL 120, BIOL 120H and BIOL 121, creating entirely new in-class experiences and online curricula, including a new online lab manual which houses 11 new inquiry-based labs with new pre-and post-lab content. The new BIOL 121e-text also connects lab content directly to faculty research and the corequisite BIOL 120 lecture content. These

² As pedagogical faculty, my research is driven by questions I can apply to my students, courses, and teaching methods For that reason, I have included data collection and analysis (Objective 6) under Teaching, in Table 6.

³ unique TAs counted by semester

innovations and new practices, which **foster intellectual growth** and **stimulate and promote student scholarship** are detailed in **Table 1** and **Table 2** of the supporting documents. Since Spring 2020, my primary goal has been revision of practices and modalities to meet our students' needs in the face of the COVID-19 pandemic and the transition to online learning. These innovations, which included two separate revisions of BIOL 121 and BIOL 123, maintained inquiry and engagement as much as possible and are detailed in **Table 3** of the supporting documents.

A benefit to teaching these courses in various levels of revision is that it allows for collection of baseline and trend data regarding retention, learning, and student/TA/faculty perspectives (**Table 4**). As I implement small and large-scale changes, these data provide an opportunity to analyze the effect of revisions and serve as indicators of change and success. I am currently using these and other assessment measures in several projects that will **contributions to the advancement of my scholarly discipline** via conference proceedings and peer-review publications. Recently, our department has agreed to reaffirm our focus on pre-professional undergrads by providing them with more relevant research experiences. I am exploring opportunities to partner undergrads with research through the Medical Center and the wider medical community in Bowling Green with Dr. Doug McElroy and currently serve as a Co-PI on three research projects as a science advisor to the Western Kentucky Heart & Lung Research Foundation and Educational Trust.

I have continuously engaged in service⁴ at the department and college level to **contribute to the institutional welfare of the University**. I have been pleased to supplement my pedagogical activities with service that also improves recruitment and retention within our college and department. I have served as the co-chair for the Ogden Retention Committee since S19. My work on this committee has entailed the creation, deployment, and analysis of several surveys (faculty and student) as well as several presentations, including to the Ogden Advisory Board. I am enthusiastic about this role and hope to use it as a platform to increase retention-based pedagogical initiatives across Ogden. I am also pleased that I have been able to serve on the Biology Department Retention, Graduate, and Strategic Planning Committees. I have participated in university level service by offering professional development workshops through the Center for Teaching and Learning and have been involved in many departmental and college-level functions.

Sustainable change takes time, requiring iterations of implementation and evaluation which have been interrupted by the pandemic. A monumental pedagogical effort was required, and continues to be necessary, to meet the challenges of COVID-19. I have learned valuable lessons this year that will improve the student experience upon return to F2F offerings. Every lecture is now available online making a hybrid/flipped classroom environment possible moving forward. Lab demonstrations are now on YouTube, allowing for pre-exposure and more time in lab for exploration. All BIOL 121 labs and most BIOL 123 labs now have online counterparts to help absent students stay on track. I have also discovered new methods of student engagement upon which I will continue to rely. Most importantly, this pandemic has reinforced my belief in caring first for our students as people. None of what is detailed in this portfolio would have been possible without the support of my colleagues, especially during our current crisis, for which I am grateful⁵. I plan to integrate what has been successful across all sections of BIOL 120 and BIOL 121 and in the coming semesters and to replicate these same effective strategies in BIOL 122 and BIOL 123 moving forward; I look forward to continuing to serve as a catalyst for change at WKU.

Thank you for your time and for this opportunity.

⁴ *Activities listed in full in my CV.*

⁵ *Specifically, Mark Clauson and Naomi Rowland, and Drs. Banga, Huskey, McDaniel, Srivastava, Wyatt, McElroy, Schulte, Grubbs, Stokes, Pesterfield & Meier.*

Supporting Materials

Syllabi Exemplar

BIOL 120:002 Biological Concepts, Metabolism, and Genetics Fall 20 Online/Hybrid Syllabus

SPECIAL NOTE: This course will be online. Zoom meetings and online assessments will be scheduled during our regular class times. The ONLY exceptions will be your midterm and final exams which, while still taken online, will be taken in your BIOL 121 lab section, proctored by graduate assistants. BIOL 121 is a concurrent requirement for BIOL 120. If you are not enrolled in BIOL 121, please complete this quick form so we can make proper accommodations: https://wku.edu/qa/questionnaire/form/SV_3WAK9K5m8rEzKd

TUESDAY & THURSDAY 09:35 AM-10:55 AM ONLINE
This course is designed for Biology and Science majors and will emphasize: cellular organization and processes, metabolism, DNA structure and replication, and Mendelian and population genetics. This course requires that Biol 121 be taken as a corequisite.

INSTRUCTOR
Dr. Natalie Mounjpy • Email: natalie.mounjpy@wku.edu • Office (3017 KTH) Hours: Via Zoom, TBD

GENERAL EDUCATION CONTENT AND GOALS
After a student completes this course they will have a foundational knowledge in the fields of biochemistry, cell biology, molecular biology and genetics. Specifically, they will be able to:

- Recognize and describe the structure and function of biological molecules
- Outline and compare cellular energetics, cellular metabolism, and photosynthesis.
- Recognize and describe the structure and function of prokaryotic and eukaryotic cells, as whole entities and in terms of their subcellular organization and processes.
- Describe and explain the synthesis, structure, and function of nucleic acids and proteins in prokaryotes and eukaryotes.
- Understand and apply the principles of inheritance from molecular mechanisms to population consequences (diversity).
- Appraise and evaluate biological knowledge in an ethical and social context.

In addition, this course fulfills 3 hours of the Cultures and the Physical and Natural World

COURSE MATERIALS

WKU is course online on Top

REQUIREMENTS

- E-quip
- The lab

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BIOL 120:002 Biological Concepts, Metabolism, and Genetics Fall 20 Online/Hybrid Syllabus

THE E-TEXT
As soon as the Blackboard Site for this course is available (I will email you) you should log-in. You will find a link in the sidebar called "Mastering Biology." This page will link to several important areas within your e-text: the "Pearson eText" (your book), the "Mastering Study Area" which has a ton of material to help your prep chapter-by-chapter, and "Mastering Assignments" where you will access the DSMs and LabBench assignments listed below.

COURSE POLICIES

GRADING: 600 POSSIBLE POINTS

Assignments = 200 points

- Assignments: 12, 20-pt assignments, drop lowest 2 = 200 points
- 1 Syllabus Quiz: you must get full points to have access to the rest of these assignments
- 4 Dynamic Study Modules: Q & A practice that changes to meet your needs. You will access these through Mastering (part of your e-text). These assignments are graded based on completeness. **Although only 4 are "for credit" I will make all of them available to you. There are two for each chapter we will cover. They are excellent ways to test your knowledge.**
- 6 LabBench: Virtual Labs to be completed for a grade in Mastery (part of your e-text). You'll have more of these as the semester progresses and as you develop a better working knowledge of concepts. Unlike the DSMs, these activities are graded based on accuracy.
- 1 Short Essay on COVID-19: This assignment will be made available for you on Blackboard and submission will be through Blackboard as well. You must submit this assignment as a Word document only. "Online" documents or Google docs will not be accepted.

Assessments = 400 points

- Quizzes: 9, 25-pt online quizzes, taken during class time. Your lowest grade will be dropped. Each quiz will cover 1-2 chapters = 200 points

BIOL 120:002 Biological Concepts, Metabolism, and Genetics Fall 20 Online/Hybrid Syllabus

COURSE SCHEDULE

Lectures Posted	Week	Tuesday Class Time	Wednesday Assignments Due @ 10:30PM	Thursday Class Time	
Ch 1 & 2	Aug 24-28	Intro & Ch 1 Zoom	Syllabus Quiz	None	
Ch 3 & 4	Aug 31 - Sep 4	Ch 1 & 2 Zoom	Ch 1 or 2 DSM	Online Quiz Ch 1 & 2	
Ch 5 & 6	Sep 7-11	Ch 3 & 4 Zoom	Ch 3 or 4 DSM	Online Quiz Ch 3 & 4	
Ch 7	Sep 14-18	Ch 5 & 6 Zoom	LabBench: Diffusion	Online Quiz Ch 5 & 6	
Ch 11	Sep 21-25	Ch 7 Zoom	Ch 7 Part 1 or 2 DSM	Online Quiz Ch 7	
None	Sep 28 - Oct 2	Ch 11	Ch 11 Part 1 or 2 DSM	Midterm Zoom	
Ch 8	Oct 5-9	MIDTERM over 1-7 & 11: Taken in your BIOL 121 Section This Week			
Ch 9 & 10	Oct 12-16	Ch 8 Zoom	LabBench: Enzymes	Online Quiz Ch 8	
Ch 12	Oct 19-23	Ch 9 Zoom	LabBench: Respiration	Online Quiz Ch 9	
Ch 13	Oct 26-30	Ch 10 Zoom	LabBench: Photosynthesis	Online Quiz Ch 10	
Ch 14	Nov 2-6	Ch 12 & 13 Zoom	LabBench Cell Division	Online Quiz Ch 12 & 13	
Ch 15	Nov 9-13	Ch 14 - 15 Zoom	LabBench Biotech	Final Zoom	
None	Nov 16-20	COMPREHENSIVE: Taken in your BIOL 121 Section This Week			
None	Nov 23-27	Fall & Thanksgiving Break			
COVID	Nov 30 - Dec 4	COVID Zoom	COVID Assignment	None	
None	Dec 7-11	Finals Week: Online COVID Quiz During Final Window: Dec 10 th @ 1 PM			

WHAT SHOULD MY WEEK LOOK LIKE TO BEST PREPARE FOR THIS CLASS?
Suggested "rhythm" for this class, do what works best for you.

- Thursdays through Mondays:** Prepare for the coming week and start going through the next set of lectures in your preferred format. View them in small chunks. Ideally, you would have a printed (or electronic) copy of the PowerPoint with you as you go through. Take notes. Be sure to write down any questions that come up.
- Mondays:** Complete the lectures as much as possible. Prepare your questions for the Tuesday Zoom meeting. Begin your HW assignments.
- Tuesdays:** Attend the Zoom meeting during our schedule course time. Take notes and ask questions. Please use the video when we meet via Zoom and remember to mute your microphone when you are not speaking. Work on your HW assignments.
- Wednesdays:** Review the lectures as needed and submit your HW assignments. Study for the Thursday quiz.
- Thursdays:** Log into Blackboard during our scheduled class time and take the weekly quiz (then return to top).

FREQUENTLY ASKED QUESTION

THE MASTERING E-TEXT IS NOT
You must use Firefox or Chrome web-browser have a very strong internet connection, pre customer support (they're very helpful) and them we Mastering with a special "DIR"

I MISSED AN ASSIGNMENT. WHA
Review the grading policies for details. You me Dr's excuses, etc. The flexibility is built. Assignments are NEVER accepte

WHAT IF I MISS AN ONLINE QUIZ
I will be on my email for the entirety of each issues. If you do not email me within the fir make it up. Your lowest quiz grade is dropped. Review the grading policies for details.

WHAT IF I MISS THE MIDTERM OR FINAL IN MY LAB SECTION?
You can make up these assessments ONLY if you provide a documented University-Recognized Excuse to me, via email. BEFORE the exam (NEVER AFTER). These include: a doctor's note, family funeral services and military service obligations. Not included: your brother's best friend's wedding or your cousin's little league baseball game.

IS IT TOO LATE TO DROP OR WITHDRAW FROM THIS CLASS?
August 31st is the last day to add a class, last day to drop a class without a grade; last day to change a class from audit to credit and the last day to receive 100% refund for a class. November 2nd is the last day to drop a class with a "W" and the last day to change a class from credit to audit.

DO YOU GIVE EXTRA CREDIT?
Not to individuals. Occasionally, I may offer extra credit to the class as a whole.

IS MY 'CURRENT GRADE' ON BLACKBOARD ACCURATE?
It's close. Due to the flexible grading, it will change some as the final grades are calculated and points are dropped from attendance, in-class assignments, and HW. It may go up or down a bit.

MY FINAL GRADE IS ALMOST AN A, OR B, OR C, ETC...WHAT CAN I DO?
Nothing. By the end of the semester your grade is what it is. If you have 89.5, I will round to an A. If you have an 88.4, you will have a B, and so on. Please do not EVER email your college professors asking for your grade to be rounded up or points to be added. INSTEAD, begin the semester with the end in mind. You don't want to look back and say, "If I'd only studied a little better or done one more assignment, I could have the grade I wanted to move on.

HOW CAN I CALCULATE MY FINAL GRADE?
In Blackboard, in our "Course Documents" tab you will see a document entitled, "Calculate Your Final Grade." This is an excel spreadsheet with the formulas built-in. You can enter your grades or prospective grades and it will calculate your final grade as we go through the semester. The "Current Grade" in Blackboard will be very close to your final grade.

Sexual Misconduct, Discrimination & Harassment: Western Kentucky University (WKU) is committed to supporting faculty, staff, and students by upholding WKU's Title IX Sexual Misconduct/Assault Policy (#2070) at <https://www.wku.edu/policies/docs/182.pdf> and Discrimination and Harassment Policy (#2,040) at <https://www.wku.edu/policies/docs/251.pdf>. Under these policies, discrimination, harassment, and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Title IX Coordinator, Andrea Anderson, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121. Please note that while you may report an incident of sex/gender-based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are "Responsible Employees" of the University and MUST report what you share to WKU's Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU's Counseling and Testing Center at 270-745-3159.

The Learning Center (TLC): The Learning Center (DSU 2141) provides free supplemental education programs for all currently enrolled WKU students. TLC offers CRLA Certified, one-on-one tutoring by appointment or walk-in. TLC also provides quiet study areas, with side rooms designated for peer-to-peer tutoring, and offers a computer lab. For more information, or to schedule a tutoring appointment, please call TLC at 270-745-5055 or log on to the website at <https://www.wku.edu/tlc>. PASS (peer tutoring) for BIOL 120 will be offered from 5-6 PM on Tuesdays and Thursdays in DSU 2141 Conference Room.

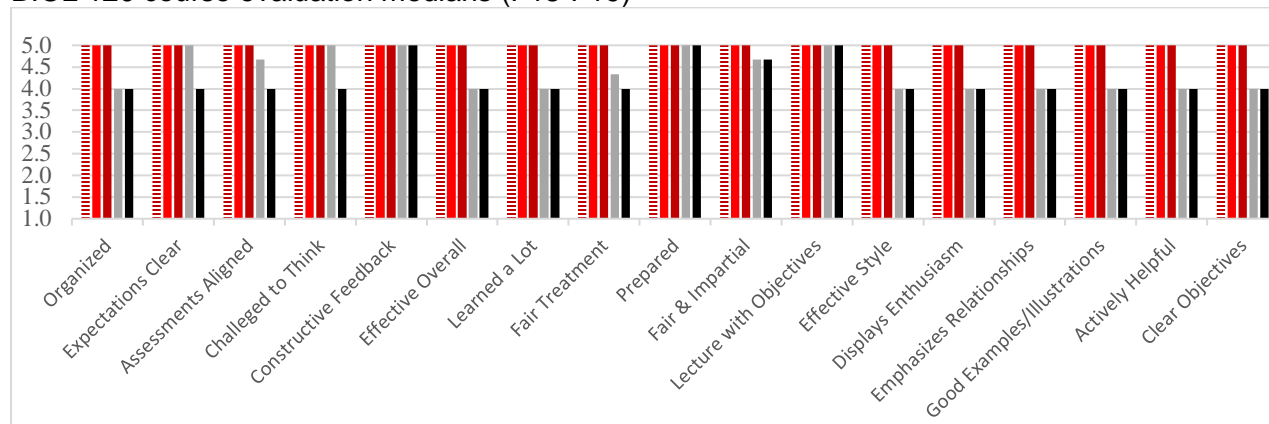
Food Insecurity: Food insecurity is defined as a condition where persons, in this case students, do not have adequate resources to feed themselves, either individually or not at all (USDA, 2013). According to a recent national study (Punger on Campus, 2016), food insecurity is common at colleges and universities across the country, potentially undermining the educational success of untold thousands of students. If food insecurity is an issue for you or someone you know, help is readily available. Contact the WKU Office of Sustainability at (270) 745-2508 or email sustainability@wku.edu or visit starvingclean.com.

For more important guidelines, policies and resources, visit: <https://www.wku.edu/syllabusinfo/index.php>.

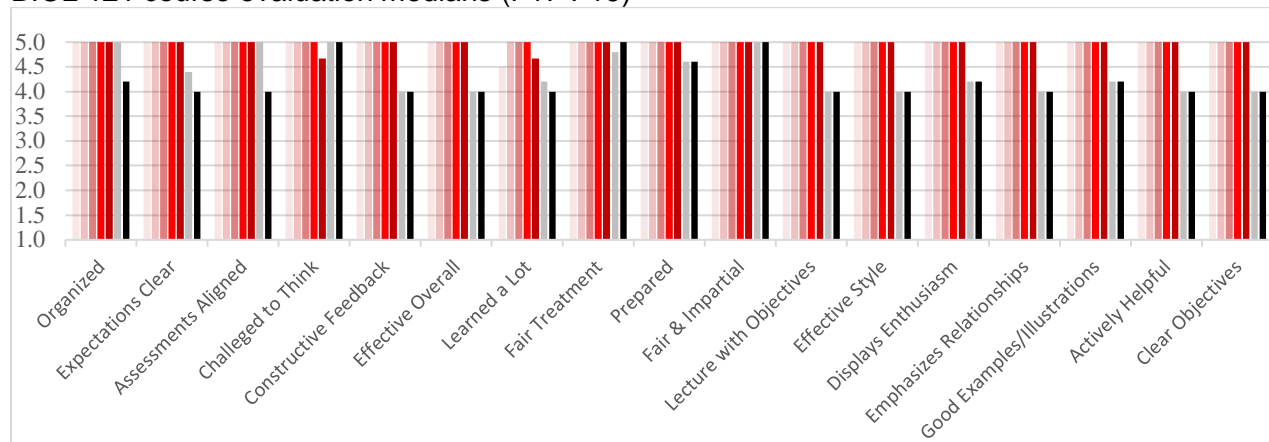
Figure 1. Syllabi Exemplar. Syllabi for all five courses are viewable in full [at this link](#). Click here to return to Personal Statement.

SITES Data

BIOL 120 course evaluation medians (F18-F19)



BIOL 121 course evaluation medians (F17-F19)



BIOL 123 course evaluation medians (F17-F18)

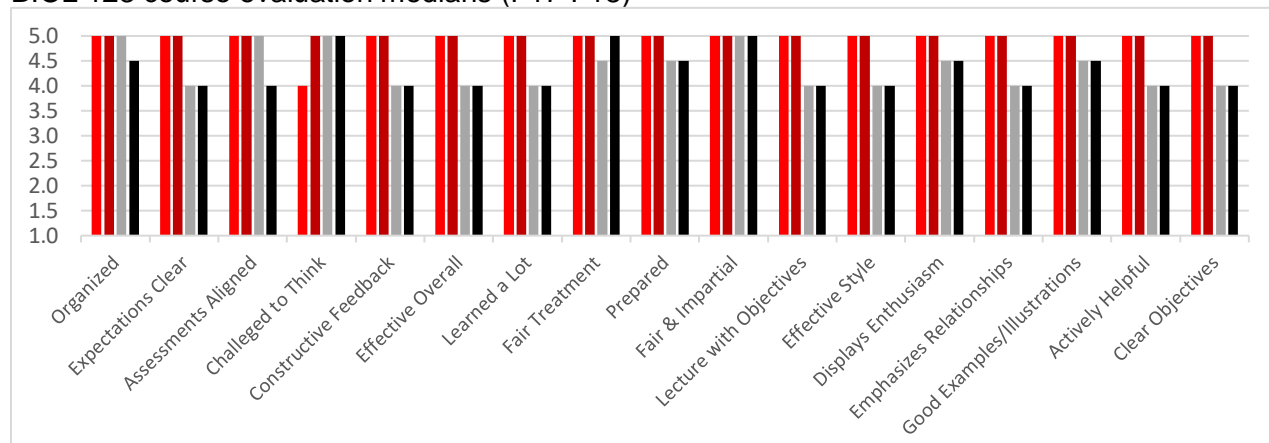
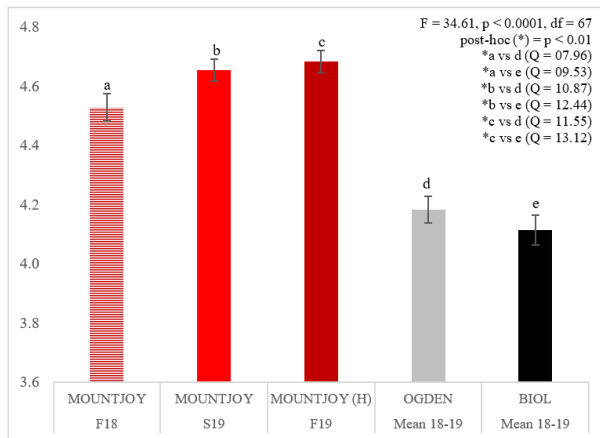
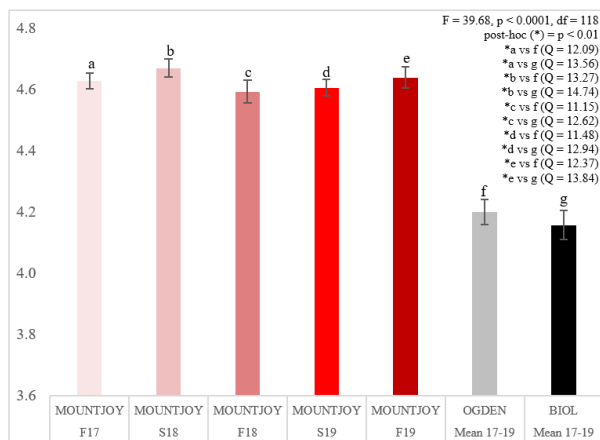


Figure 2. Mountjoy course evaluation medians (red bars) across all questions compared with the mean Ogden (gray bars) and Biology Department (black bars) medians over the same period. Various shades of red bars denote sequential semesters. Across my sections, the mean response to each question was between agree and strongly agree (4.38-4.88) and positive differences were most pronounced on questions regarding preparation and organization, feedback, effectiveness, helpfulness, and enthusiasm. COVID data are shown in separate figure. Click here to [return to Personal Statement](#).

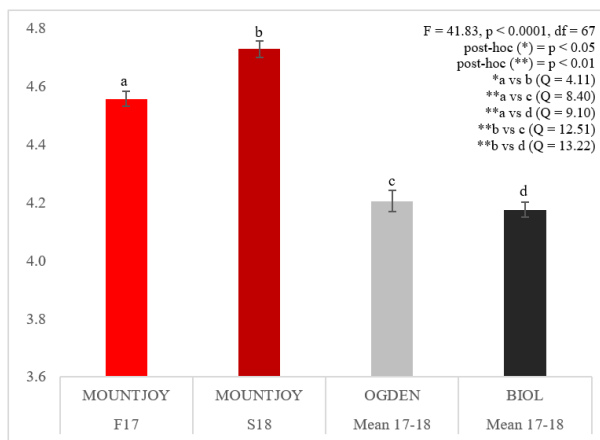
SITES Data (continued)



BIOL 120 overall mean scores with standard error, compared with the Biology Department and Ogden College. Analysis of variance (F = 37.844, p < 0.001, df = 84) showed the mean for MOUNTJOY's scores to be significantly higher (Q = 7.96 - 13.12, p < 0.01) than those for Ogden College and the Biology Department in all semesters. There was no significant difference between MOUNTJOY's scores across semesters.



BIOL 121 overall mean scores with standard error, compared with the Biology Department and Ogden College. Analysis of variance (F = 39.68, p < 0.0001, df = 118) and Tukey's post hoc analysis showed the mean for MOUNTJOY's scores to be significantly higher than those for Ogden and the Biology Department and in each semester (Q = 11.15 - 14.74, p < 0.01). There was no significant difference between MOUNTJOY's scores across semesters.



BIOL 123 overall mean scores with standard error, compared with the Biology Department and Ogden College. Analysis of variance (F = 41.83, p < 0.0001, df = 67) and Tukey's post hoc analysis showed the mean for MOUNTJOY's scores to be significantly higher than those for Ogden and the Biology Department and in the fall and spring. There was a significant increase in MOUNTJOY's scores between the fall and spring semesters (Q = 4.11, p < 0.05).

Figure 3. Bar graphs showing the mean comparison between SITES scores for MOUNTJOY vs. Ogden College and the Biology Department means. MOUNTJOY scores were significantly higher for each course. Additional side-captions detail ANOVA and Tukey's post-hoc results. [Click here to return to Personal Statement.](#)

Student Comments

- Dr. Mountjoy is an awesome teacher. She makes the class not boring and extremely interesting. You can tell that she is very passionate about biology and that she cares about her students. She is clear about when the homework assignments are and is understanding when students have problems. You can easily go to her office hours and talk to her about something you don't understand or to talk about your grade.
- Dr. Mountjoy is a spectacular professor! I have never loved biology more. Her PowerPoints are effective and relay the information visually. We cover a lot of information, but her effective descriptions help me retain the information. She relays the relationships between all subjects and challenges us to use critical thinking. She is always clear in the objectives and ensures our work is purposeful. She is extremely personable and approachable. Dr. Mountjoy allows for work that is challenging, yet manageable and that always leaves me with a deep understanding. This course makes me feel prepared for future courses.
- Dr. Mountjoy is an excellent professor. She always reminds us we are able to email her or come to her office hours with questions, and gives us tips and study strategies to help us prepare for exams. While sometimes she can go through the powerpoints a bit fast, she did a survey on us and saw that we had said this and rectified it which was nice. She listens to our feedback and is always enthusiastic when teaching.
- I could not speak more highly of Dr. Mountjoy. If I could take her for every biology class ever, I would. She is not only the coolest person ever, but she teaches so effectively. I have never seen a teacher of an intro-bio level class care so much about the success of her students. The class is challenging in the fact that there is no much content, but she makes it so much better through her fun explanations and comparisons. She does everything in her power to help each and every student. She makes me want to come to class even on Friday mornings.
- This course was definitely challenging at first but Dr. Mountjoy has made it so much more tolerable than it originally was. The powerpoint slides she uses during the lectures make the content much more understandable and a great study tool. She is ALWAYS willing to help a student and answer any questions we might have. If I can take Dr. Mountjoy again, I definitely will.
- I think Professor Mountjoy brings incredible enthusiasm to every class meeting. Her course is unlike any other collegiate class I've thus taken, but her course is effective. I found the student taught assignments to be interesting but still an effective method of presenting the course material. I appreciate the concern and interest she has for our feedback and opinions within class.
- I could not say enough good things about Mountjoy. She is excited about teaching, and she wants her students to do well while challenging them at the same time. She is prepared, informed, and willing to accommodate students who are willing to reach out.
- It was an absolute PLEASURE to be taught by Prof. Mountjoy!! Every class she was excited to be teaching a subject she truly cared about. With all the students she has, I felt like she knew all of us. That most basic connection to her students made me feel comfortable asking questions and bringing any concerns to her. She looked for common place connections to subject matter and her use of menti-meter, and in class assignments, was a great way to show active involvement in her students' education. I am actually sad her class is almost over!
- My instructor did an AMAZING job of teaching the BIOL 121 course! I learned a lot and the learning environment was always very welcoming, yet reasonably challenging. My instructor made difficult topics interesting and was very enthusiastic and knowledgeable of the topics. She gave constructive feedback and made it a point to make sure her students understood the content being presented to them. It was such a joy to have this instructor. Natalie Mountjoy is a great professor! She makes lab fun and easy to understand. I always feel like I know what to do, and if I don't then I can always ask for her guidance and figure it out.
- I think Dr. Mountjoy is a phenomenal teacher. She will explain things in a couple of different ways for everyone to understand what is going on. She will help us individually and get right beside us
- The instructor tested an online lab manual, and I think that this method is an improvement over the traditional paper lab manuals
- Dr. Mountjoy is such a joy to be around. She is very helpful to all her students in class, catering to the needs of each individual student. She is always open to help and has a very open mindset. Her class is very student driven and based on what the students want to do. I highly recommend this class and Dr. Mountjoy.
- She is helpful, but doesn't just tell us the answer. She is good at guiding her students to the answer.

Figure 4. Student Comments Universal totals across courses and semesters: Positive (N=145), Mixed (N=23), Actionable (N=19). All comments [available here](#). Click here to [return to Personal Statement](#).

SITES Data: COVID-19 S20 (continued)

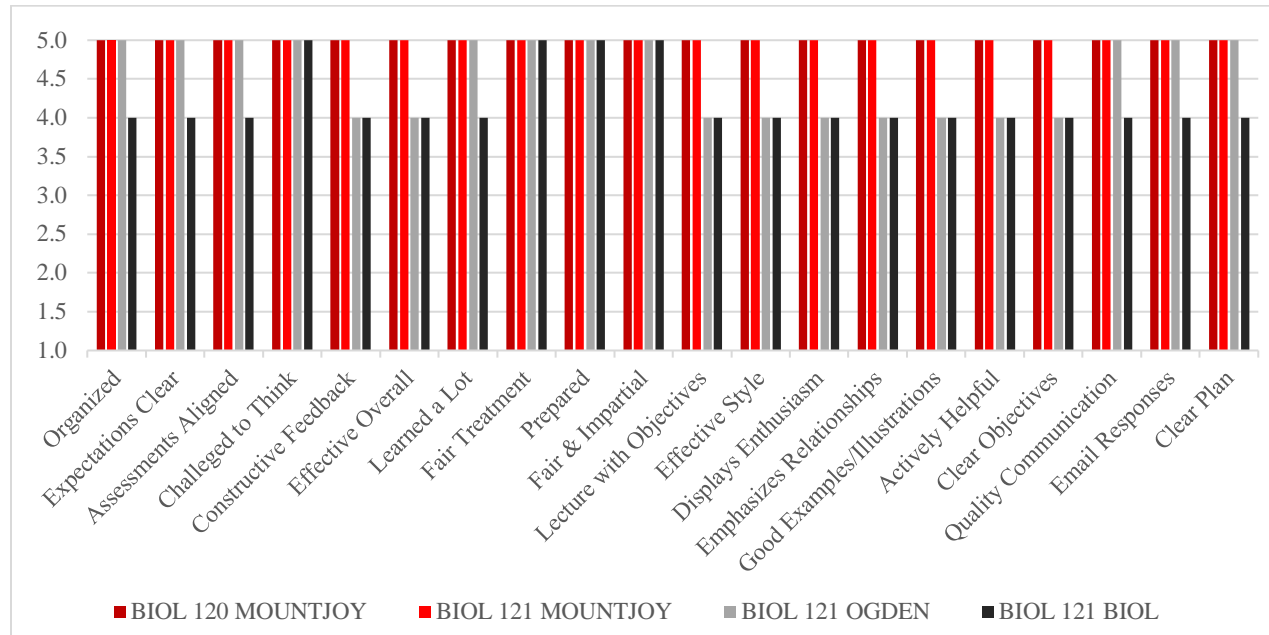


Figure 5. COVID-19 (S20) course evaluation mean medians across all questions from MOUNTJOY vs. the mean Ogden and Biology Department scores. Click here to [return to Personal Statement](#).

Student Comments S20

- Dr. Mountjoy has been amazing. I am not a bio person, but I have been thoroughly interested in this class. I am really sad I won't have her again.
- Dr. Mountjoy has been an incredible teacher. It is easy to see that she loves what she does because she is more than willing to add office hours, add more help, and post extra tools to help students learn. During face-to-face classes she made the long lecture fun and engaging. I wish that I could take another class with her because she taught me a lot. She is the best teacher I have had so far at WKU.
- I liked Mountjoy! Biology isn't really my forte but she made it about as enjoyable as she could for me. She teaches a really large class but you can tell she cares about all her students. She does everything she can to help us understand content.
- Loved having this lecture with Dr. Mountjoy, she is such a down to earth person!
- Even though this class isn't my favorite material wise, Mountjoy still managed to make me enjoy going to the class. The class is tough, but hard work will get you far.
- Mountjoy is always so happy to be teaching us. She is so involved with us and she wants to make sure we can succeed at the highest level we can. If something isn't working for you, she will go out of her way to help you make sure it is. Like since all of our exams are online now, if your WIFI isn't working she will make sure she can restart your test so you can get the best grades you can. She emails or sends us announcements about 2-3 times a week. One of my favorite lecture teachers, hands down.

Figure 6. COVID-19 (S20) excerpted student comments. All student comments from S20 are [available here](#). Click here to [return to Personal Statement](#).

Table 1. Innovative Practices

<p>Changes in Lecture: BIOL 120 Biological Concepts - Cells, Metabolism, and Genetics</p> <ul style="list-style-type: none">• F17-S18: Class observation- Identified need for increased attendance and engagement.• F18: Introduced Acadly® a free cell phone app that uses Bluetooth for attendance and provides a lecture back channel where students post questions and submit in-class work.• F18: Implemented 15 new in-class micro-activities in BIOL 120. These “study starters” help students understand how topics are related, collect relevant information across topics, and deepen their understanding of complex concepts (examples).• F18: Introduced student polling app called MentiMeter® to ask content-based questions throughout lecture to increase engagement and ascertain student understanding before and after covering new content (examples).• F18: Introduced the FlashLITE® App. Students hold up their phones, screens forward, and tell me how they felt about the content: good (green), ok (yellow), not-so-great (red). I can quickly gauge understanding, and students can let me know their status privately.• S19: Revised in-class assignments and app-usage based on student feedback.• S20: Pilot tested Learning Assistants (LAs), to make the large class feel smaller. I divided 120 students into 13 groups of 10-15 for our in-class assignments and out-of-class study sessions. Each student group was led by an experienced upperclassman serving as an LA or “BioCoach.” The LAs were enrolled in my newly created Biol 369 course so they received credit for their efforts as BioCoaches. (*interrupted by COVID-19, see syllabus) <p>Universal Changes in labs: BIOL 121 and BIOL 123</p> <ul style="list-style-type: none">• Created standardized content (e.g., PowerPoints, pre-labs, assignments, and assessments) and pre-loaded the package into each section of BIOL 121 and BIOL 123.• Devised new assessment strategies including on-line quizzes, to save class time, for additional explorations through an inquiry-based approach, and TA grading time.• Developed exit slips, for each course, to ensure students knew the key concepts behind each lab activity. TAs use the answers to facilitate discussions and reviews.• Implemented new set-up strategies, decreasing student wait time, contamination, mislabeling, and overall lab length and created a new set-up guide.• Created new supplemental content sections on blackboard for BIOL 121 and BIOL 123• Created a new (private) YouTube channel to house lecture content and lab demonstrations (view example demo video). <p>Additional Innovation in BIOL 121 Biological Concepts Lab - Cells, Metabolism, and Genetics</p> <ul style="list-style-type: none">• F18: Revised the paper manual to allow for increased inquiry (view paper manual).• S19: Began creation of a new on-line curriculum⁶ for BIOL 121. The new e-text was created on the Weebly website platform: www.121cellmetagen.com.• The second half of the new curriculum was piloted in one section during S19.• S19: Integrated MediaSite® video-demos into the new e-text, intended to better students’ understanding before lab begins and give them a resource to go to if they have questions.• F19: The entire curriculum was piloted in one section of BIOL 121.• F19: Developed a new YouTube channel for video demos embedded in the new manual.• S20: Created a new content map with lab/lecture connections for all BIOL 120 faculty.• S20: The new curriculum was rolled out, in its entirety, in every section of BIOL 121 <p>Students found these innovations helpful (Figure 7 and Figure 8).</p>

Click here to [return to Personal Statement](#)

⁶ The manual is currently in hybrid from S20. [Available here as used in F20](#) where labs were rewritten to last one hour, instead of two, to allow for sections to be split in smaller groups of 16 for social distancing.

Table 2. New Content & Procedures

Development of new lecture content

- F19: Implemented "[Teaching to Learn](#)" in BIOL 120H, where students create lectures and activities for the class to cover small amounts of content. Over the course of three classes my students covered 1.5 chapters of content.

- F19: Introduced a PBL (problem-based learning) project where students were asked to identify a local, national, or global "problem" that was connected to our BIOL 120 content and could be addressed through scientific exploration. Students created scientific posters detailing their research, which were printed (with funds from my [Mahurin Honors Faculty Engagement Grant](#)) and presented in a mini poster session (shown above).



Students created scientific posters detailing their research, which were printed (with funds from my [Mahurin Honors Faculty Engagement Grant](#)) and presented in a mini poster session (shown above).

- S20: Dr. Kerrie McDaniel and I developed a [module on metacognition](#) to present following the first exam, to help students better understand the difference between "studying" and "learning." Most BIOL120 [students said](#) they would try the new study strategies following the presentation. (*interrupted by COVID-19)

Development of a new course: BIOL 369: Cooperative Education in Biology, LA Co-op

- S20: In order for the new Learning Assistants (LAs) in BIOL 120 to receive credit, I created a new companion course in which the LAs had to enroll.
- Expectations included leading their small groups in 8-10 classes of BIOL 120, setting up review sessions before exams, evaluation of in-class assignments, bi-weekly 369 meetings, reflections on perceived impact on Biol 120 students and on themselves ([view guidebook](#)). (*interrupted by COVID-19)
- LAs reported this was a valuable experience for them and that they felt it would also be valuable to the 120 students in the future ([Figure 9](#) and [Figure 10](#)).

Development of new laboratory procedures

- F18: I wrote a new lab for BIOL 123 to introduce a [timeline of earth's natural history](#) and the metric system. It includes the evolution of all taxa covered in 123 and helps students visualize the temporal scale of evolution and get comfortable working together.
- F18: I re-wrote the [Animal Behavior Lab](#) in BIOL 123 to reorganize the presentation of the chi-square statistic. I changed the class assignment from an individually written scientific paper to a group-produced scientific poster. The new assignment still exposes students to scientific writing but is better aligned to the research conducted in lab.
- F18: I revised the current paper manual to allow for increased inquiry with assistance from Ms. Katie Laslie (former TA) and Mr. Mark Clausen.
- S18-F19: I created a new curriculum for BIOL 121, with [new objectives](#) and [student learning outcomes](#), in an online [e-text](#). Content selection was based on [focus groups](#) and individual meetings with BIOL 120 engaged faculty, and the need to move toward an inquiry-based approach. Students were positive following the S18 pilot. A new [set-up guide](#) was developed to follow the new lab curriculum.
- New online manual Excerpts ([Figure 11](#)).

Click here to [return to Personal Statement](#)

Table 3. Covid-19 Modifications

Plan and new syllabus for each course (student comments)

BIOL 120: Lectures (8 chapters) recorded on MediaSite, uploaded to our YouTube channel, and made available as podcasts. PowerPoints made available on Blackboard.

- Instead of 3 remaining exams, we had 8 new, weekly assessments to decrease cheating incentives and maximize retention. Assessments were online via Blackboard.
- 10 new assignments were created to replace the remaining participation points and in-class assignments: A new Covid/Syllabus Survey, Tell Me What I Need to Know About You Now, Bio @ Home: Get out of your house, The Biochemistry of Kindness, 5 LabBench Assignments, and a short essay on students' perceptions of COVID-19
- 2 weekly zoom-recitation sessions one during class time and one during the evening.
- Students felt I provided them the best possible course experience during COVID (review COVID related student comments)

BIOL 121 & 123

- BIOL 121: New pages were added to the 121 e-text to deliver the new online-only curriculum. Examples: Photosynthesis & PCR
- BIOL 123: No online content existed aside from Blackboard, so an entirely new BIOL 123 online manual was created (Figure 12).
- S20: 12 labs (6 from 121 and 6 from 123) were replaced with new virtual or at-home labs, and data (like what would have been collected in lab) were provided so analysis could continue. Students submitted their data and/or analyses in post-labs which also included content questions and places for the students to paste selfies completing the lab activities (example below, student response in red)

HOME EVOLUTION PROTISTS ANIMALS ECOSYSTEMS FUNGI ECOLOGY TERRESTRIAL PLANTS

Before you begin: Open the Home Manual/PowerLab. Additional manual resources to assist you are available in the Home Manual/PowerLab. To receive full credit for this online lab, you must complete the lab activities and submit your data to your Post-Lab to receive full credit for this online lab.

FIND YOUR PILLBUGS & RUN YOUR EXPERIMENTS

Procedure Part I

1. Find some pillbugs! Where should you look? Think about what you have learned about pillbugs!
2. You will find pillbugs in their natural habitat. Randomly select three habitats using random sampling (random, under rocks, logs, beneath sidewalks or bushes).
3. Count the number of pillbugs. You need a minimum of 100 pillbugs to proceed with the lab. They spread fast, but it's important to count them as soon as you can.
4. Note the date and time of your count and where you found them.
5. Count your pillbugs and complete Part I of Exercise 1 in your post-lab.

Procedure Part II

1. Prepare your solutions for today's lab in a 250 mL beaker.

Experiment	Day	Sun	Shade	Wet	Dry	Total	Mean	SD	SE	95% CI	P	F	t	z	p	n	N	df	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Insert a photo of this experiment here.

Procedure Part III

1. Paste a selfie with each tree in each large square. In the smaller section below each square write the common name and the scientific name (in the correct format) for each tree you identified.

Without scientific names:

With scientific names:

Exercise II. Practice Spectrophotometry

Identify the components of an absorbance spectrophotometer. This virtual lab is meant to give you some of what this technique is like and how you can use it. Hopefully you'll get to use the real thing in your lab class.

1. Enter the virtual Spec-Lab (press update to install your viewing software if prompted). You will see 6 cuvettes. Cuvettes are special test tubes. The one labeled 3 is your "blank" and is used to zero your spec. Cuvette tubes 1-5 you will fill with your samples. Cuvette tubes 6 is a reference and serves no purpose. We will ignore tubes 6 and 3.

ENTER SPEC VIRTUAL LAB

Exercise II. Spectrophotometry Virtual Lab

Run through the simulation by following the directions in our online lab manual. Complete the table below:

Cuvette Tube	Contents	Volume of Blue Solution Added	Volume of Water Added	Absorbance (ABS) at 660 nm	Concentration of Blue Solution (µg/mL)
0	Water (Blank)	0	---	0	0.00µg/mL
1	Water & blue indicator	20	30	0.7	0.00µg/mL
2	Water & blue indicator	50	50	0.7	0.00µg/mL
3	Water & blue indicator	80	20	0.3	0.00µg/mL

Exercise I

Paste three selfies in the area below. The third MUST be a selfie of you with your extracted DNA!

- F20: Labs and manual had to be completely revised again to fit in-class activities into the shortened class time. Two-hour sections of 32 were split into two 1-hour classes of 16 to allow for social distancing.
- New Post-Labs were written for each along with new online-only final exams.
- TAs conducted supplemental zoom meetings with the class and/or individuals as needed.

BIOL 369

- LAs continued to touch base with their groups through email, texting and zoom and developed two new in-class assignments and conducted a literature review on the use of learning assistants in large lectures to compensate for lost in-class time.

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Table 4. Data Collection & Scholarly Activity

Student Learning & Perspectives

- Collated grades across all sections in BIOL 121 and BIOL 123 for comparisons post-implementation of course changes.
- Analyzed student SITE evaluations including comments ([Table 1](#)).
- Conducted “Student Opinion Surveys” regularly in BIOL 120, 121 and 123 to explore student perceptions of new technology, teaching methods and content ([Table 2](#)).
- Biology Student Concerns During Online-Only Instruction ([survey development & analysis](#)) (implemented due to COVID-19 in S20)

TA Perspectives & Faculty Perspectives

- Collected and recorded perspectives on labs and assessments during weekly meetings and conducted an “Allocated Time Survey” for comparison after lab revisions.
- Conducted a focus group with faculty involved in BIOL 120/121 to ascertain the most and least & most important content covered
- Initiated one-on-one meetings with BIOL 120 faculty (i.e., Dr. Sirvastitva, Dr. Rice, Dr. Wyatt, Dr. Smith and Dr. Rinehart) to discuss plans for BIOL 121 including the new e-text format and new content and curricular changes.
- Biology Faculty Concerns During Online-Only Instruction ([survey development & analysis](#)) (implemented due to COVID-19 in S20).

Scholarly Activity Regarding Retention (Full descriptions and status updates are [available here](#))

- Why they stay: Analyzing the persistence of at-risk students in the Ogden College to identify successful retention initiatives and programs (PI, with the Ogden Retention Taskforce, IRB-approved, first year of data collection was implemented in F18-S19 ([Advisory Board Data Presentation](#)) (on hold due to COVID-19).
- Evaluating Advising Practices Across Ogden College: A Needs Assessment (Co-PI, with the Ogden Retention Taskforce, IRB-approved (on hold due to COVID-19).

Scholarly Activity Regarding Pedagogical Initiatives (Full updates are [available here](#))

- S18: Following up on 5th week interventions: Which type of follow-up measure (announcement, email or meeting) achieves the greatest impact on students’ final grades – Collecting 5th week and final grades for all students and coding each based on intervention types: [Preliminary Analysis](#). (on hold due to COVID-19).
- Measuring the impact of increased inquiry-based techniques introduced into the biology curriculum across courses and cohorts. (with Ms. Naomi Rowland) [Default Qualtrics Report](#). (on hold due to COVID-19).
- F18: Online lab manuals: Student perceptions and learning outcomes – Creating online survey to deploy in section with the paper manual and the section with on-line manual: [Pilot Survey Results](#). (BIOL 121 is complete, will implement in BIOL 123 after revisions)
- F19: The effects of using HIPs in gateway courses on student success and retention. Using grade data from different types of lectures across campus. I am working with Dr. Daniel Super and Dr. Douglas McElroy on this project ([Preliminary Analysis](#)).
- S20: Learning Assistants in the General Biology Lecture Hall: How peer mentoring and small groups can transform the student experience in large lectures (on hold due to COVID-19).
- S20: Teaching students to learn: The effects of a metacognition-based intervention on student success in large lecture classrooms. I am working with Dr. Kerrie McDaniel on this project. [Early Results](#) (on hold due to COVID-19).

Review CV for recent presentations & publications. Click here to [return to Personal Statement](#)

Student Perspectives

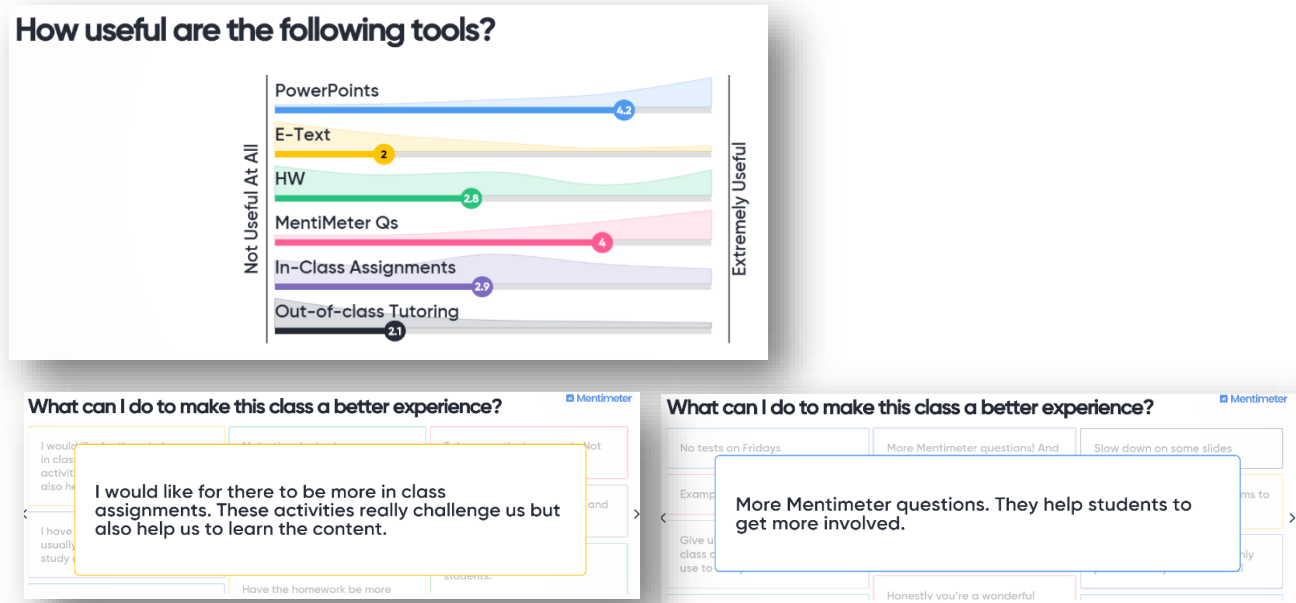


Figure 7. Student perspectives on in-class assignments and MentiMeter student polling cell phone app. [Return to Table 1.](#)



Figure 8. Student Perspectives on the new online e-text from pilot section in F19. Full implementation was interrupted by COVID-19 in S20. [Return to Table 1.](#)

Student Perspectives (continued)

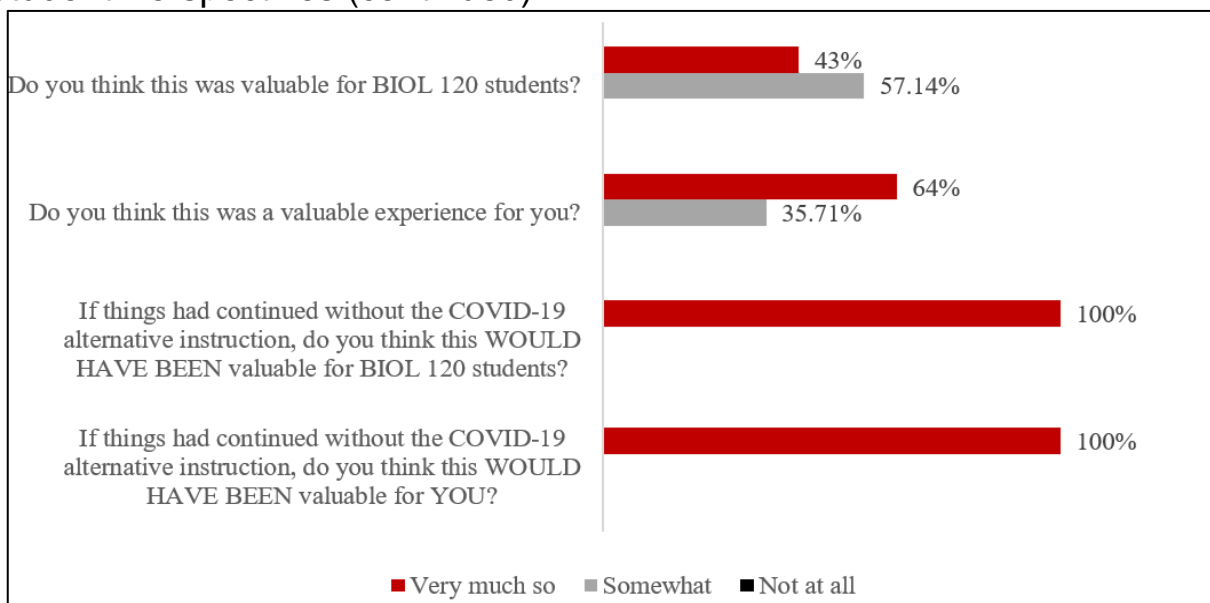


Figure 9. Survey responses from Learning Assistants. [Return to Table 1.](#)

Do you think using Learning Assistants in BIOL 120 is a good idea? Why or why not?

- Yes, as highlighted in my literature review, many studies support it is beneficial for each aspect of the program: students, LAs, and professors. Grades improved, LAs were refreshed on foundational material while also learning ways to teach the material, and professors were made aware of material that was harder to grasp. For Bio120 it is a great idea because the lecture hall is so large. Students don't feel a belonging and it is very hard for them to get behind. Having an LA they can count on could change their outlook on biology as a whole. Being able to ask questions increases their understanding which can increase their satisfaction with the course. This can lead to more students pursuing a biology degree.
- I believe it is a good idea. The literature review over the learning assistance topic really put into perspective the large impact this can have for everyone involved, but from a personal perspective I believe it is great to give students this opportunity. Having someone available that has already been through the class and knows about the difficulties of college as a whole can be beneficial, especially to the freshman you usually have. These relationships can last longer than just this class also!
- Yes, I would have loved to have the option of having an older peer not only talk to me about how best to study for science courses but also to be there for me for scheduling and application advice if I was on a pre-med, dental, pharmacy track.
- I think this was an amazing idea and should definitely be considered for the future! This is a great opportunity for students in BIOL 120 to have extra support within the classroom and outside of it. This also serves as an opportunity for upperclassman students to have this credit, and be more involved in Biology by being in the classroom and helping younger students.
- Yes I do think this is a good idea. These students are just entering their future at Western. Many of them are scared to make connections, ask questions, or do not know how to effectively study. This learning assistants program gave them an extra source that is directly available to them and relatable. Learning assistants gives them a peer to talk to be less intimidating when asking a question or expressing their thoughts.

Do you think this was a worthwhile experience for you? Please discuss what we intended vs what we could actually implement given the COVID-19 pandemic.

- ...relearning the material helped me in my current biology class. It also helped me realize that the stuff I learn in each class is in fact important and will be used in later classes. It can seem easy to just learn material for the test but that is not what we are here for.
- I think this was very beneficial. Personally, I was able to review important content and I developed an appreciation for professors. I was able to learn interpersonal skills for how students act when they are confused but are nervous to speak up. I think the study session will be very beneficial in the future. If we are online next semester, I think Zoom review sessions might work as well. However, it is difficult for LAs to communicate with the students if they don't reply.
- This was definitely a worthwhile experience for me. These students gave me a new confidence that I have not had. It made me feel good to know that I could help them out by explaining a thought or even give them the confidence in an answer that they needed for reassurance. This was a whole new level of tutoring and more personable relationships. Had the COVID-19 pandemic not been a factor, I think being in person and seeing where they are struggling with would have given me the opportunity to further clarify a topic they needed help with and also help me to see where they are at and what studying techniques they are using is effective or not.

Figure 10. Excerpted comments from BIOL 120 Learning Assistants from their self-reflections. All comments [available here](#). [Return to Table 1.](#)

New Online Lab Manual: BIOL 121

BIOLOGICAL CONCEPTS: CELLS, METABOLISM & GENETICS

ABOUT UNIT 1 UNIT 2 UNIT 3 LIBRARY WKU BLACKBOARD

[Metabolism]
What factors affect the rate of cellular respiration in crayfish?

Lab 7: Pre-Lab

Your task in Lab 7 is to carryout your experiment regarding the rate of cellular respiration and begin to analyze your data. To prepare for Lab 7, please review this pre-lab page. Once you feel confident regarding the below topics, complete the corresponding LABridge in Blackboard.

Lab 7: Protocol

In today's lab you will work with your lab group to conduct your experiment and begin to analyze your data.

Exercise I. Review your research proposal and the pre-lab and revise where necessary

Exercise II. Practice virtual titrations

Exercise III. Analyze your data

- Demonstrate understanding of metabolism & cellular respiration
- Perform titrations, acid-base reactions and molar calculations
- Analyze data using quantitative methods and graphical representation
- Conduct a mini literature review
- Complete a research proposal
- Construct and test a hypothesis
- Design and carry out an experiment
- Analyze data using quantitative methods and graphical representation
- Draw conclusions based on data and relevant literature

Exercise II. Practice Titrations

In our experiment, we would have placed the crayfish in a slightly basic (pink) solution, due to the phenolphthalein indicator undergone cellular respiration while in the beaker and generated and released CO₂ as a by-product.

In an aqueous environment, CO₂ combines with water to first create carbonic acid, which is then broken down into hydrogen ions. The addition of H⁺ ions results in a change in pH: the pH decreases and becomes more acidic. The introduction of CO₂ from the crayfish would have lowered the pH some, but not enough in 20 minutes to make it acidic enough to turn clear.

Remember:

- Basic solutions are pink with the phenolphthalein indicator
- Acidic solutions are clear with the phenolphthalein indicator

How much "work" (cellular respiration) did the crayfish do while in solution? We can determine that through titrations. Until we would have added drops of an acidic titrant (sulphuric acid) until the solution reached a clear endpoint.

- If we needed to add lots of drops, then the solution was farther from the endpoint because the crayfish did not expel much CO₂ and must have had less respiration.
- If we needed to add fewer drops closer to the endpoint because and must have had a higher respiration.

In either case we can use "the amount of titrant used" to determine the amount of CO₂ produced.

Titration is an important skill in chemistry. It is a technique used to determine the concentration of a substance in a solution. In this experiment, we will use a standard solution of sodium hydroxide (NaOH) to determine the concentration of an unknown acid solution. The endpoint is reached when the solution changes color from pink to clear.

Introduction/Review Do you know enough? What would we have done in lab? LABridge

Cellular Respiration

CONNECTION ALERT! Cellular respiration is the topic of Chapter 9 in your BIOL 120 lecture. Please review your textbook as needed for this lab.

Energy is the currency of life: all living organisms require energy to survive and reproduce. Metabolism is the series of reactions and processes, catalyzed by enzymes, which together maintain life. These reactions fall into two types: catabolic or anabolic. These processes are the inverse of each other and in photosynthetic organisms occur in tandem as the anabolic reactions of photosynthesis create the products that are then broken down by the catabolic reactions of cellular respiration (view figure at left).

There are two general classes of cellular respiration that are characterized by their relative efficiency (ATP production): anaerobic (without oxygen) and aerobic (oxygenated) respiration. We are focusing on aerobic respiration in this lab, which is a highly efficient process occurring within the mitochondria of eukaryotic organisms that have higher energy requirements for survival. In a 4 step process, oxygen and glucose are used to produce energy (ATP), H₂O, and CO₂.

- 1. Glycolysis ("splitting of sugar"):** This step happens in the cytoplasm. One Glucose (C₆H₁₂O₆) is broken down to 2 molecules of pyruvate. Requires 2 ATP to start, produces 4 with a 2 ATP net payoff.
- 2. Pyruvate Grooming:** The pyruvate from glycolysis is shuttled into the mitochondria, where it is converted to a molecule called Acetyl CoA for further breakdown.
- 3. The Citric Acid Cycle:** Occurs in the mitochondrial matrix. In the presence of oxygen (O₂), all the hydrogens (H⁺) are stripped off the Acetyl CoA, two by two, to extract the electrons for making ATP, until there are no hydrogens left - and all that is left of the sugar is CO₂ - a waste product - and H₂O. The Citric Acid Cycle results in the production of only ~4 ATPs, but produces a lot of NADH, which will go on to the next step.
- 4. The Electron Transport Chain and Chemiosmosis ("the big ATP payoff").** Occurs in the cristae of the mitochondria, the folded membranes inside. Electrons from hydrogen are carried by NADH and passed down an electron transport chain. The energy release runs pumps that create an electrochemical gradient of H⁺ ions. In Chemiosmosis, a big pump called ATP Synthase uses the gradient to produce ~28-31 ATPs for every molecule of glucose.

Lab 7 BIOL 120 CONNECTIONS

Section 1.6: Doing Biology
 Big Picture 1: How to Think Like a Scientist
 BioSkills 2: Reading & Making Graphs
 BioSkills 3: Interpreting Standard Error and Using Statistical Tests
 BioSkills 4: Working with Probabilities
 Chapter 9: Cellular Respiration

Faculty Spotlight: Dr. Noah Ashley

TITRATION VIRTUAL LAB

Procedure

1. Open the Titration Virtual Lab
2. Enable Adobe Flash if needed
3. Open the Notebook Guide & fill in this table as you go
4. You will complete two titrations
5. The steps of the lab are not proceed through to step 5.
6. On step 5, be careful you do not reach endpoint. You should use titrant until it does not occur.

We are conducting experiments to identify factors that affect the physiological process of cellular respiration in crayfish. Similarly, Dr. Noah Ashley's lab works to identify physiological, immunological, and behavioral responses to various factors, like sickness and sleep loss, in mice and birds. Specifically, they are investigating the costs and benefits of the sickness response in vertebrates, the inflammatory response in sleep-deprived mice, sleep loss in migratory birds, and the sleep-wake cycle in arctic songbirds. Dr. Ashley's lab is extremely productive! His research proposals have been funded by the NSF and the NIH. Learn more here (Lab Web Page). You just might recognize one of his current graduate students!

Research Key Words: physiology, ornithology, eco-immunology, genomics, sleep loss, arctic song birds, migrating birds

Recent Publication: Cooper, L. N., Mishra, I., Ashley, N.T. 2019. *Short-Term Sleep Loss Alters Cytokine Gene Expression in Brain and Peripheral Tissues and Increases Plasma Corticosterone of Zebra Finch (Taeniopygia guttata)*. *Physiological and Biochemical Zoology* 92:80-91.

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6 H₂O + 6 CO₂ + ATP

Products:
 Water & Carbon Dioxide & Energy

ANAEROBIC RESPIRATION REVIEW

AEROBIC RESPIRATION REVIEW

Figure 11. Screenshots of the new online BIOL 121 e-text. The current version exists as an online only hybrid. You can review types of content (e.g., "BIOL 120 Connections" and "Faculty Spotlights") on our [about page](#). [Return to Table 1.](#)

New Online Lab Manual: BIOL 123

HOME EVOLUTION PROTISTS ANIMAL BEHAVIOR FUNGI ECOLOGY TERRESTRIAL PLANTS

BIOL 123: PROTIST VIRTUAL LAB

Objectives: Following this lab you should be able to...

- Identify various species and taxonomic groups under the microscope (by image)
- Describe key characteristics of each including: how/what they eat, if/how they move, key organelles and life history traits
- Discuss the effect of each protist on the ecology or health of biological systems
- Compare the traditional and new classification system shown

Overview

- Exercise I. You will review a slide show of 10 protists. You will identify each protist to the appropriate taxonomic level. Your results will be recorded in the Post-Lab.
- Exercise II. You will identify special morphological and life history traits of each protist provided in the Post-Lab.
- Exercise III. In Part 1 you will identify the new "key lineage" of eukaryotes in the Post-Lab. In Part 2, you will write an essay comparing the traditional and new classification systems shown.

Before you begin! Open the Protist Post-Lab. Follow the directions in each exercise closely so you know what to do. Please note that your responses for Exercise I, II and Part 2 will be graded.

Exercise I **Exercise II** **Exercise III**

The photo gallery below depicts two images of each protist discussed in your lab manual and in the accompanying PowerPoint. The first image on each slide is from a past BIOL 123 lab and was taken under the compound microscope. The second image is more idealized photo.

- Go through the images carefully.
- Determine which slide (the number is in the caption, they are in order 1-10) matches each protist.

Protist List

- Amoeba proteus*
- Spirogyra sp.*
- Entamoeba histolytica*
- Dinoflagellates
- Paramecium caudatum*
- Euglen gracilis*
- Giardia lamblia*
- Plasmodium falciparum*
- Diatoms
- Volvox sp.*

Exercise I **Exercise II**

- Please view the videos below of protist movement. You can test your knowledge in the last video.
- Continuing working on your table.
- Identify the characteristics provided for each protist from the slide show: special organelles, method of movement, mode of energy acquisition, common habitat, special life history traits, how they live, and potential human implications.
- Use the provided PowerPoint and your original lab manual for help.

Amoeba eats paramecia (Amoeba's Lun... Watch later Share

Euglena - The Flagellate Watch later Share

Paramecium tutorial HD Watch later

Exercise I **Exercise II** **Exercise III**

The term protist (literally, "the very first") refers to all eukaryotes that are not land plants, fungi, or animals. Protists have no defining feature that is found only in protists and in no other organisms. As a result, they do not form a naturally occurring unified group. Historically, protists were thought to represent their own separate kingdom, but this viewpoint is now obsolete. Nevertheless, "protist" is still used as a collective term for practical purposes.

Part 1

- Review section 27.4, including Table 27.3, in your BIOL 120 eText for help with this task.
- Complete the table you began in Exercise 1, by identifying the new "Key Lineage of Eukaryotes" in which each protist now belongs.

Part 2

- Review the two images below (click to enlarge).
- Please read (or re-read) the introduction to chapter 27 and the chapter review in your BIOL 120 eText.
- Write a brief essay (~250 words) on the difference between the two classification systems below. Be sure to include the reasons for the "new" system and include morphological and genetic evidence for the new phylogeny.

Traditional Classification System:

- Animalia (eukaryotic, multicellular)
- Fungi (eukaryotic, multicellular)
- Plantae (eukaryotic)

New Classification System:

- Bacteria
- Archaea
- Amoebozoa
- Fungi

Figure 12. Screenshots of the new online BIOL 123 [e-text](#) created to allow for online-only delivery during S20. These new labs also provide a starting point for the complete revision to begin next semester. [Return to Table 2.](#)

Letters of Support

Excerpts are available below and full letters of support are available at the following links:

-Undergraduate Students: [Elizabeth Lyons](#), [Phoenix Gray](#), and [John Thomas Newman](#)

-Graduate Teaching Assistants: [Wesley Payette](#)

-Faculty: [Dr. Bruce Schulte](#)

“Many words come to mind when someone hears the name, Dr. Natalie Mountjoy. She has been a professor at Western Kentucky University for a short period, but has made an impact in her community and among her students that will last a life time. She is not only an incredible professor that genuinely cares about the success of her students, but she is an advisor that works vigorously for her students to achieve their dreams. I first had the pleasure of meeting Dr. Mountjoy in Biology 121 lab. Our class knew from the first lab that she didn’t want to just teach us definitions, but inspire us and provide skill sets to use throughout the rest of our lives. Each week she came in with a positive attitude and radiating energy. She was constantly asking how she could improve the lab for the next semester, what more she could do as a professor to help us learn, and what we needed from her to succeed not only in the classroom, but in all aspects of school and life...” [\[continue reading\]](#).

-Excerpt from Elizabeth Lyons’ letter, Undergraduate Student

“The foundation of any excellent teaching methodology is the environment under which it is implemented, and Dr. Mounjoy’s classroom setting exemplifies her understanding of this concept. As a professor of students who use modern technologies in almost every facet of their lives, Dr. Mountjoy’s greatest hurdle as a professor is presenting the necessary concepts in a manner that is readily digestible by an easily distracted audience. Despite the many obstacles that this issue brings, Dr. Mountjoy effortlessly overcame each one without sacrificing her duties as a professor by utilizing interactive online platforms, such as Acadly and Mentimeter, as a means to both encourage student engagement in the material and allow her students to cultivate a profound understanding of complex biological processes. Being able to appeal to the learning styles of modern college students is a skill whose importance is unsurpassed, and Dr. Mountjoy’s classroom structure displays her mastery of this skill...” [\[continue reading\]](#).

-Excerpt from Phoenix Gray’s letter, Undergraduate Student

“Dr. Mountjoy has worked tirelessly to create an inquiry-based learning approach that gives the student both the power and responsibility to create their own experiment during each BIOL 121 class session. This project took an incredible amount of forward thinking and troubleshooting. During Spring 2020, I was part of her group of teaching assistants responsible for implementing this new design to the students. During the first class that spring, I noticed immediately how the students thought and behaved differently, attempting to solve problems rather than follow a strict protocol. Without Dr. Mountjoy’s hard work and creative thinking, this new class design would not have been possible. Because of her, I believe future students enrolling in BIOL 121 will finish the class with a better foundation of the scientific process and why that process is so important. In addition to her strong work ethic, Dr. Mountjoy has displayed an amazing patience and kindness to her students. This is evidenced through her strong communication skills (in the lecture hall, the lab, online, and one-on-one) and her willingness to listen and encourage students despite whatever difficulties they may be facing. Dr. Mountjoy praises critical thinking and gently confronts mistakes and bad decisions. She is by no means a pushover, but treats her students and teaching assistants with respect, while also holding them to a high standard that she will help them achieve. As a TA I learned so much from her patience and dedication to us and her students...” [\[continue reading\]](#).

-Excerpt from Wesley Payette’s letter, Graduate Teaching Assistant

Letters of Support (continued)

“Dr. Natalie Mountjoy is a stellar nominee for the OCSE Teaching Award. I recommend her with great enthusiasm and my wholehearted support. Most faculty join a department and become valuable members of the departmental team. On occasion, a new faculty member establishes a leadership role early on and facilitates new directions. Rarely, an individual can change the way the department, the institution, and indeed the profession operates. Dr. Natalie Mountjoy is that rare individual. In just 3.5 years, her impact has been profound. Dr. Mountjoy was hired to teach and oversee the introductory biology courses and laboratories for majors. As documented in her application, she is a fantastic teacher and directly interacts with hundreds of students every semester. As part of her responsibilities, she also trains and oversees the biology graduate teaching assistants who instruct the introductory labs. She has completely rewritten our laboratory curriculum to create dynamic and interesting project-oriented labs. Her training of the graduate students has elevated the learning experience for the graduate and undergraduate students alike. Through her project approach, she has involved biology faculty as featured scientists. In addition, by establishing a solid foundation for learning in the introductory courses, she has influenced how the department is educating students throughout the curriculum. What started as a ripple is becoming a powerful wave of change. Importantly, this is not change for the sake of change. Dr. Mountjoy documents outcomes and evaluates processes, leading to data driven modifications to how and what is taught. On top of these profound alterations, she played an instrumental role in adapting the courses to virtual and hybrid formats, keeping the welfare of students foremost in her priorities...” [continue reading]

-Excerpt from Dr. Bruce Schulte’s Letter, former Biology Department Head, current Associate Vice-President for Strategy, Performance and Accountability

“For the last two years Dr. Mountjoy has diligently created a new platform for the Biol-121 lab. The lab is no longer “set-in-stone” so to speak, rather students get to design their own experiments. In the old lab everyone did the same experiment, and the TA knew the exact outcome. Now students choose which variables they want to manipulate, the TA guides them in their approach and design, and they compare outcomes within the class. On top of that, she has incorporated what was previously left out of freshmen level labs—statistical tests and scientific literature—it’s no secret that both will appear as students advance into upper-level courses within our discipline. Dr. Mountjoy’s new approach promotes inquiry-based learning, and I have seen students, firsthand, acquire essential skills that will greatly benefit them throughout their four years in Ogden College. The example above is just one snippet of many influential changes Dr. Mountjoy has implemented in her courses, but it says a tremendous amount about her as an educator. Dr. Mountjoy is an ecologist; however, she successfully redesigned a course molecular in nature. We have a large number of preprofessional students who will be taking some of the most important and challenging standardized exams, luckily Dr. Mountjoy’s innovations in educating students will prepare them for success beginning week one of their time at WKU. Dr. Mountjoy constantly delivers a level of dedication to her students, her TA’s, and Ogden College that is matched by few. She not only promotes inquiry in the classroom but does so for each individual student regardless of where they stand in their level of biological knowledge. She has been the most influential educator on me, as a biology student and future physician, to date. Over the last four years I have had multiple courses in the Biology, Chemistry, and Physics departments, and I cannot think of a more deserving faculty member for this award...” [continue reading]

-Excerpt from John Thomas Newman’s letter, Undergraduate Student, Advisee and Teaching Assistant

Curriculum Vitae

Natalie Jones Mountjoy, Ph.D.
Department of Biology · Western Kentucky University
Bowling Green · KY · 42101
natalie.mountjoy@wku.edu

EDUCATION

2014 Ph.D. Zoology and Center for Ecology, Southern Illinois University
2007 M.S. Biology, Western Kentucky University
2002 B.A. Biology, University of Kentucky

PROFESSIONAL EXPERIENCE

2017-current Assistant Professor, Pedagogy, Department of Biology, Western Kentucky University
BIOL 120 Biological Concepts: Cells, Metabolism & Genetics
BIOL 120 Biological Concepts Honors: Cells, Metabolism & Genetics
BIOL 121 Biological Concepts Lab: Cells, Metabolism & Genetics
BIOL 123 Biological Concepts Lab: Ecology, Evolution & Diversity
BIOL 369 Cooperative Education in Biology Learning Assistant Co-Op

2012-2016 Director, Life Science Academy, Multi-district, secondary and post-secondary partnership, Owensboro Community and Technical College

2012-2016 Adjunct Faculty, Owensboro Community and Technical College
PLW 130 Principles of Biomedical Science
PLW 145 Biomedical Innovation

2016 Instructor, Project Lead the Way, University of Kentucky

2011-2012 Graduate Teaching Fellowship, NSF Noyce Program, Southern Illinois University
PBL 270 Interdisciplinary Science Seminar

SCI 503b Scientific Research Methods for Teachers
2011 Guest Lecturer, Southern Illinois University
Human Dimensions of Natural Resource Management & General Biology

2007-2009 Adjunct Faculty, Owensboro Community and Technical College
Bio 112 General Biology Lecture
Bio 113 General Biology Lab

2005-2007 Graduate Teaching Assistant, Western Kentucky University
Bio 123: Biological Concepts
Bio 114: Introduction to Biology

CURRICULUM DEVELOPMENT

2020 Emergency on-line only curriculum for BIOL 120, BIOL 121 and BIOL 123, including development of a new BIOL 123 course website (biol123online.com)

2020 Learning Assistants in Introductory Biology (BIOL 369), for inclusion in BIOL 120 lectures

2019 Inquiry-based curriculum development for BIOL 121 Biological Concepts Lab: Cells, Metabolism & Genetics (121cellmetagen.com)

2017-current Inquiry and problem-based revisions to introductory courses for biology majors at Western Kentucky University.

2012-2016 Inquiry-based curriculum for the Life Science Academy Community Benefit Program

2011-2012 Inquiry-based curriculum for the NSF Noyce Teacher Scholarship Program at Southern Illinois University

- 2009-2012 Inquiry-based curriculum for the Budding Biotech Program and Summer Camp for 3rd and 4th grade students through the Owensboro Museum of Science and History and the Western Kentucky Botanical Garden
- 2008 Shared introductory biology lab curriculum at Owensboro Community and Technical College
- 2007 Bio 112 General Biology and Bio 113 Introductory Biology Lab courses at Owensboro Community and Technical College
- 2006 Assisted faculty in developing the curriculum for the new Biology 123 lab course at Western Kentucky University

RESEARCH EXPERIENCE

- 2020-current The effects of using HIPs in gateway courses on student success and retention
- 2020-current Learning Assistants in the General Biology Lecture Hall: How peer mentoring and small groups can transform the student experience in large lectures
- 2020-current The affect of COVID-19 on cardiology: Patient & practitioner perspectives on telemedicine (pilot-study to expand undergraduate research experiences).
- 2019-current Teaching students to learn: The effects of a metacognition-based intervention on student success in large lecture classrooms
- 2018-current Why they stay: Analyzing the persistence of at-risk students in the Ogden College of Science and Engineering to identify successful retention initiatives and programs
- 2018-current Identifying the impact of increased inquiry-based techniques into the biology curriculum across courses and cohorts.
- 2017-current Assessing the effects of 5th week interventions: Which type (announcement, email or meeting) achieves the greatest impact on students' final grades.
- 2009-2014 Community-based natural resource management: group capacity, resource management planning and assessing success, Dissertation Research with Dr. Matt Whiles and Dr. Erin Seekamp
- 2011 Illinois-Indiana Sea Grant, Researcher, Southern Illinois University with Dr. Erin Seekamp
- 2009 Watershed Health Integrated Research Program, Graduate Student Researcher, Southern Illinois University with Dr. Mae Davenport
- 2008 National Science Foundation Math Science Partnership, Research Assistant, Western Kentucky with Dr. Heather Johnson
- 2005-2007 The effects of human/wildlife conflict on the potential for community-based ecotourism in the Kasigau region of southeast Kenya, Thesis research with Dr. Mike Stokes
- 2001- 2002 The distribution of the *Neotoma magister* (Allegheny woodrat) in an isolated, mix-mesophytic forest in Southeastern Kentucky, Independent study with Dr. James Krupa
- 2000- 2002 Analysis of sex-ratio bias in *Marchantia inflexa* (liverwort), Lab Assistant with Dr. Nicholas McLetchie

CONFERENCE PROCEEDINGS (* student under advisement)

- [Accepted] Davis, S., T., Wolinski, M., Groves, C., Mountjoy, N.J., Thompson, L. 2021. Focus on High Impact Practices: Creative Uses of Honors Faculty Engagement Grants. 2021 Student Success Summit. Western Kentucky University.
- Mountjoy, N. J., McDaniel, K., Rowland, N. It Takes a Department to Shift a Paradigm: Starting in the lab. AAC&U's Transforming STEM Higher Education conference, Chicago, IL, November 7-9, 2019.

- Ayers, R., Dumancic, M., Mountjoy, N. J., Otto, P., Super, D, and Upright, P. Keeping the promise of colonnade: Needs assessment and action plan. AAC&U's 2019 Institute on General Education and Assessment, Burlington, Vt, June 4-7, 2019.
- *Stallings, A., Vora, S., Towery, N., Mountjoy, N. J. And the band played on: hearing loss among percussionists. Project Lead the Way, Posters at the Capital, KY, March 1, 2017.
- *Murtaza, I., Madai, N., Howerd, J., Mountjoy, N. J. The effects of environmental factors on REM sleep. Project Lead the Way, Posters at the Capital, KY, March 1, 2017.
- *Stallings, A., Jones, J., Vora, S., Mountjoy, N. J. An EPIc challenge: the rising costs of epi pens. Project Lead the Way, Posters at the Capital, KY, March 1, 2017.
- *Embry, A., Buckman, C., Mountjoy, N. J. Trotting all over the navicular: the effects of environmental variables on Navicular Syndrome in horses. Project Lead the Way, Posters at the Capital, KY, March 1, 2017.
- Mountjoy, N. J., Advanced Research Techniques. Invited speaker, Project Lead the Way, Kentucky State Conference, Shelbyville, KY, October 3-4, 2016.
- *Cecil, M., Kurtz, L., Linn, E., Mountjoy, N. J. Keep it clean, bacteria's mean: a better bioassay to detect bacteria in the emergency department. Project Lead the Way, Posters at the Capital, KY, February 18, 2016.
- *Martin, N., Hall, W., Muthalali, S., Mountjoy, N. J. Protect your blind side or suffer the consequences: an analysis of the impact of concussions on high school athletes' GPAs. Project Lead the Way, Posters at the Capital, Frankfort KY, February 18, 2016.
- *Miller, A., Millay, R., Hebda-Hobbs, G., Emani, C., Mountjoy, N. J. Tracing the ancestry of the asthma gene using bioinformatics. Project Lead the Way, Posters at the Capital, Frankfort KY, February 18, 2016.
- Mountjoy, N. J., What is the Life Science Academy? Invited speaker, Owensboro Rotary Club, Owensboro, KY, January 2016.
- Mountjoy, N. J., Your Biomedical Program from In-Vitro to In-Vivo. Invited speaker, Project Lead the Way, Kentucky State Conference, Somerset, KY, October 2-3, 2015.
- Mountjoy, N. J., Parent and Community Involvement Forum, invited speaker, Project Lead the Way, Kentucky State Conference, Somerset, KY, October 2-3, 2015.
- Mountjoy, N. J., Seekamp, E., Davenport, M. A., Whiles, M. R. The effects of community-based group capacity on resource management planning success: Elevating implementation outcomes from good to great. Presented by Natalie Mountjoy at the Ecological Society of America Conference, Minneapolis, MN, August 4-9, 2013.
- Seekamp, E., Mountjoy, N. J., Davenport, M., Whiles, M. 2013. Achieving laser-like vision: An examination of the relationship between indicators of CBNRM group capacity and planning success. Presented by Erin Seekamp at the International Symposium on Society and Resource Management, Estes Park, Colorado, June 4-8, 2013.
- Seekamp, E., Mountjoy, N. J. 2013. Alcohol, apathy, and arrogance: Examining the effectiveness of the Stop Aquatic Hitchhikers! Campaign. Northeastern Recreation Research Symposium, Cooperstown, New York, April 5-7, 2013.
- Renzaglia K., Janesie, J., *Sikorski, J. W., Mountjoy, N. J., Henson, H. 2012. Research Activities and Problem-based Learning Experiences of Rural Teachers in Southern Illinois. NSF Robert Noyce Teacher Scholarship Program Conference, Washington, D.C., May 23-25, 2012.
- Mountjoy, N. J., Davenport, M. A., Myers, D. J., Whiles, M. R. An assessment of Illinois Conservation Opportunity Areas: Stakeholders' perspectives on conservation planning, implementation, and threats. A poster presented by Natalie Mountjoy at the Emerging Issues Conference, Atlanta, GA, April 11-14, 2010.
- Mountjoy, N. J., Exploring the potential bushmeat epidemic in southeastern Kenya, Walk and Talk Seminar Series, Invited speaker, Western Kentucky Botanical Garden, Owensboro, KY. April 2008.

- Mountjoy, N. J., A look at community-based conservation efforts in southeast Kenya: The importance of human dimensions in wildlife conservation. Invited speaker, International Program, Owensboro Community and Technical College, Owensboro, KY, February 11, 2008.
- Mountjoy, N. J., Daday, G., Stokes, M., Kimwele, C. Questioning conservation: Social surveys in conservation biology as tools to determine the potential of community-based ecotourism efforts. Presented by Natalie Mountjoy at the International Conference of the Society for Conservation Biology, Port Elizabeth, South Africa, 2007.
- Jones [Mountjoy], N., Smith, B., Sutton, B., Kimwele, C., McElroy, D., Stokes, M. Assessment of the bushmeat trade in southeastern Kenya. Presented by Dr. Stokes at the international conference of the Society for Conservation Biology, Port Elizabeth, South Africa, 2007.
- Jones [Mountjoy], N., Smith, B., Sutton, B., Kimwele, C., McElroy, D., Stokes, M. Assessing bushmeat availability in Kenya's rural and urban markets. Presented by Natalie Jones at the annual American Society of Mammalogists Conference, 2006.

PEER-REVIEWED PUBLICATIONS

- [accepted 12/20] Singh, A., McElroy, D., and Mountjoy N. J. 2021. Patient perspectives with telehealth visits in cardiology: An online patient survey following the rapid switch due to COVID-19. *Journal of Medical Internet Research: Cardio*.
- Mountjoy, N. J., Whiles, M. R., Spyreas, G., Lovvorn, J. R., & Seekamp, E. 2016. Assessing the efficacy of community-based natural resource management planning with a multi-watershed approach. *Biological Conservation*, 201, 120-128.
- Mountjoy, N. J., Seekamp, E., Davenport, M. A., & Whiles, M. R. 2014. Identifying capacity indicators for community-based natural resource management initiatives: focus group results from conservation practitioners across Illinois. *Journal of Environmental Planning and Management*, 57(3), 329-348.
- Mountjoy, N. J., Seekamp, E., Davenport, M. A., & Whiles, M. R. 2013. The Best Laid Plans: Community-Based Natural Resource Management (CBNRM) Group Capacity and Planning Success. *Environmental management*, 52(6), 1547-1561.
- Krupa J, et al. . . . Jones [Mountjoy], N. 2002. Distribution of the Allegheny Woodrat (*Neotoma magister*) in an isolated, mix-mesophytic forest in Southeastern Kentucky. *Journal of Kentucky Academy of Sciences* 65(1): 33-34.

IN-PROGRESS MANUSCRIPTS

- Mountjoy, N.J. Learning Assistants in the General Biology Lecture Hall: How peer mentoring and small groups can transform the student experience in large lectures and provide upperclassman with opportunities to build in-discipline knowledge, confidence, and communication skills. *Potential Outlets: Innovative Higher Education, Journal of College Science Teaching*
- Mountjoy, N. J. and Rowland, N. A story in inquiry in three labs: How the scale of inquiry and student maturity affects student learning gains. *Potential Outlets: International Journal for the Scholarship of Teaching and Learning or Life Science Education*

PUBLISHED TECHNICAL REPORTS

- Meyers, D. J., Mountjoy, N. J., Whiles, M. R., & Seekamp, E. 2012. Illinois Conservation Opportunity Areas: Coordination and Planning in Support of the Illinois Wildlife Action Illinois Department of Natural Resource Management Project Number: T-55-P-1. Final Report. Available at <https://www.dnr.illinois.gov/conservation/IWAP/Documents/-SWGReports/T-55%20P-1%20Final%20IL%20COA-%20Coordination-Planning%20in%20Support%20of%20the%20Action%20Plan%20-Revised.pdf>.

- Mountjoy, N. J., Seekamp, E., Myers D. J., Whiles M. R. 2011. Making conservation work: ideas from on-the-ground practitioners. Illinois Department of Natural Resource Management Project Number: T-55-P-1. Available at <http://www.dnr.illinois.gov/conservation/iwap/documents/t-55%20swg%20project/2-%20fg%20report%20to%20idnr.pdf>.
- Mountjoy, N. J., Davenport, M. A., Meyers, D. J., & Whiles, M. R. 2010. An assessment of Illinois Conservation Opportunity Areas: stakeholders' perspectives on conservation planning, implementation, and threats. Illinois Department of Natural Resources. Available at <http://www.dnr.illinois.gov/conservation/IWAP/Documents/T-55%20SWG%20project/1-%20Original%20COA%20Survey.pdf>.

GRANTS

- 2019 Mahurin Honors Faculty Engagement Grant, \$280.00, awarded.
- 2018 Office of International Programs for travel and course development, \$2,000.00, awarded.
- 2018 Ogden Quick Turn-Around Grant, \$1,600.00, not funded.
- 2016 Kentucky Education Cabinet, Work Ready Skills Initiative (collaborator, finalist) \$5,760,000.00, awarded at 50%
- 2016 Dart Foundation Grant for STEM Education \$5,000.00, awarded
- 2016 Owensboro Health Community Benefit Grant \$60,500.00, awarded
- 2016 National Science Foundation, Education, Outreach and Communication (collaborator with C. Emani & C. Wilkerson), \$10,000.00, awarded
- 2015 Dart Grant for STEM Education, \$5,000.00, awarded
- 2015 Owensboro Health Community Benefit Grant, \$64,000.00, awarded
- 2015 Kentucky Department of Education, Federal Perkins Reserve Fund, \$24,000.00, awarded
- 2015 Women's Guild Grant, \$1,000.00, awarded
- 2014 Dart Foundation Grant for STEM Education, \$5,000.00, awarded
- 2014 Owensboro Health Community Benefit Grant, \$52,000.00, awarded
- 2014 Kentucky Department of Education, Biomedical Sciences Career Pathway Grant, \$15,000.00, awarded
- 2013 Owensboro Health Community Benefit Grant, \$61,550.00, awarded

SERVICE

- 2020-current Department of Biology Strategic Planning Committee Member
- 2019-current Department of Biology Advising Committee Member
- 2017-current Ogden College Retention Taskforce, Co-chair 2019-20
- 2017-current Department of Biology Graduate Committee
- 2017-current MAT-Biology Admission Advisor
- 2017-current Department of Biology Retention Committee, Chair 2019-20
- 2016-current Board of Directors, Western Kentucky Botanical Garden, Owensboro, KY
- 2020 Science advisor to WKHL and the Medical Center
- 2020 CITL Faculty Development Webinar: Keeping it After Covid [invited and lead]
- 2020 CITL YouTube Panel Presentation and Q&A: Assessment during COVID-19 [invited]
- 2020 Biology Student & Faculty Concerns During Online-Only Instruction (survey development & analysis)
- 2020 New Faculty Q & A Panel: Ogden College
- 2020 Search Committee: Biomedical Faculty, Biology Department
- 2020 Search Committee: Department Chair, Biology Department
- 2020 Ogden Preview Day
- 2020 WKU HerStory Recruiting Event

2017-2019 Program Director and Advisor: MAE in Biology
 2017-2019 Gatton Academy Interview Day
 2017-2019 Gatton Academy Research Fair
 2019 Ogden College Advisory Board Presentation
 2019 WKU Colonnade General Education Curriculum Taskforce
 2019 Biology Clubs and Faculty Meet & Greet
 2018 Ogden Preview Day
 2018 Science Olympiad
 2014-2017 Institutional Animal Care and Use Committee (IACUC), Owensboro Community and Technical College
 2016 Forum guest on "Female Ph.D.s" at the Girl's Inc. STEM Event, Kentucky Wesleyan College, Owensboro, KY
 2013-2015 Impact 100 Member (women's service organization) Owensboro, KY
 2008-2013 Founder and consultant with the Budding Biotech Program, Owensboro Museum of Science and History, Owensboro, KY
 2008-2013 Board of Directors, Owensboro Museum of Science and History, Owensboro, KY
 2008 Guest Scientist, Girls Inc., Owensboro, KY, <http://sciencegirlsinc.weebly.com>
 2005-2006 Co-President, Inaugural Biology Graduate Student Organization, Western Kentucky University

PROFESSIONAL DEVELOPMENT

2020 Getting the Most from Mastering: Pearson, November 2020.
 2020 Keeping it After Covid: Participant & Facilitator, WKU-CITL November 2020.
 2020 Assessment during COVID-19, WKU-CITL, June 2020.
 2020 Integrative student and course data, Pilot Program Training, Pearson, February 19,
 2019 Association of American Colleges & Universities, Transforming STEM Higher Education conference, Chicago, IL, November 7-9, 2019.
 2019 Association of American Colleges & Universities, Institute on General Education and Assessment, University of Vermont, June 2019.
 2019 Problem-based Learning Professional Learning Community, Center for Innovative Teaching and Learning, WKU, February - March 2019.
 2019 Pearson's Biology Leadership Community Summit, invited participant, Las Vegas, Nevada, March 19-21, 2019.
 2019 HIPs (High Impact Practices) in the States Conference, WKU, February 20-22, 2019.
 2018 Mastery Training with Pearson, teleconference, July 24, 2018.
 2018 The Teaching Professor Conference in Atlanta, GA, July 1-3, 2018.
 2018 Kentucky Pedagogicon at Eastern Kentucky University, May 18, 2018.
 2018 Blackboard - 10 Things You Didn't Know, IT - WKU, February 22, 2018.
 2018 5th Week Assessment Training, ACDC, WKU, February 16, 2018.
 2018 Using Micro Activates Workshop, Center for Innovative Teaching and Learning, WKU, WKU, January 14, 2018.
 2017 iClicker Training, Steven Kirtley, Senior Instructional Technologist, Center for Innovative Teaching and Learning, WKU, September 6, 2017.
 2017 IT Blackboard Training, On-line training, WKU, September 2017.
 2017 Service-Learning Professional Learning Community, Center for Innovative Teaching and Learning, WKU, Sept. - Oct. 2017.
 2015 Core Training in Biomedical Innovation, Project Lead the Way, University of Kentucky, June, 2015.
 2012 Core Training in Principles of Biomedical Science, Project Lead the Way, University of Kentucky, June 2012.

RECOGNITION

- 2020 CITL Teaching Honors Nominee
- 2020 Alpha Omicron Pi Faculty Member of the Year
- 2019 Alpha Delta Pi Faculty Member of the Year
- 2018 Ogden College Junior Faculty Teaching Award
- 2016 Project Lead the Way, Kentucky Teacher of the Year
- 2016 Awarded Master Teacher Status, Project Lead the Way
- 2012 Graduate Fellowship, NSF Robert Noyce Master Teacher Program, Southern Illinois University
- 2010 Integrative Graduate Education and Research Traineeship (IGERT) Affiliate, Multidisciplinary watershed science team, Southern Illinois University
- 2007 John D. Minton Award for Outstanding Contributions, Western Kentucky University
- 2007 Ogden College of Science and Engineering Outstanding Graduate Student, Western Kentucky University
- 2007 Biology Graduate Student of the Year, Western Kentucky University
- 2006 American Philosophical Society, Lewis and Clark Field Scholar
- 2005 World Topper Scholarship, Western Kentucky University

PROFESSIONAL SOCIETY MEMBERSHIPS

Association of American Colleges and Universities, National Science Teachers Association, Society for Human Ecology, Society for Conservation Biology

PROFESSIONAL REVIEWS

Conservation Biology, Case-Studies in the Environment (Pedagogical Journal), Environmental Management, Journal of Environmental Planning & Management, Ecological Economics, Human Dimensions of Wildlife