Department of Biology

Western Kentucky University

2020-2021 Mentoring Meeting

June 10, 2021

Faculty Mentee: Dr. Natalie Mountjoy

Mentor: Dr. Kerrie McDaniel

Coordinator: Dr. Scott Grubbs

The mentoring committee met with Dr. Natalie Mountjoy and discussed her progress towards meeting her teaching, service and research goals for 2020-2021. This is Dr. Mountjoy's fourth review and she will be eligible for tenure 2022-2023. This packet demonstrates how she has met her teaching, service and research goals, her timeline for curriculum revision implementation as well as teaching evaluation results.

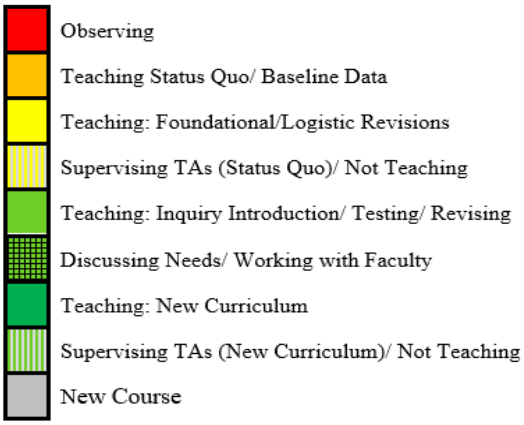
NJM 2021 Committee Meeting Documents

COVID Considerations

1. Standardizing BIOL 120 innovations
    - The flux in BIOL 120 faculty is somewhat helpful in this regard.
    - The delay has been I was not able to fully implement and test the last 3 innovations I had planned due to COVID.
    - I will do so in F21 with hopeful implementation in S22 before tenure.
2. Completing BIOL 121 transformation
    - S20 was the first semester all section would run the complete new curriculum.
    - Two planned trips to Kenya were cancelled due to COVID (for bushmeat in Unit 3)
    - We will implement the entire new curriculum in F21-S22 using "unknown" meat samples from Huskey to test the protocol.
    - I will apply for permits and arrange a summer trip with Nancy to extract DNA in the field.
3. Beginning 122 innovations
    - Conversation has started.
    - Creating an online library (innovations, theory, evidence from BIOL 120)
4. Beginning BIOL 123 transformation
    - It was not possible to implement new inquiry-based labs during COVID.
    - I will write and implement one new unit in F21 and at least one more in S22 before tenure. When I go up in F22 I will have the curriculum rewritten and most of it piloted. We should be looking at full implementation by F22/S23.
5. Pedagogical research projects
    - All pedagogical research has been paused since S20.
    - I have kept all my IRBs up-to-date so I can restart this fall.
    - Hoping for at least 1, maybe 2, pedagogical manuscripts to be submitted by F22.

COVID-Adjusted (C) Timeline

Course	Academic Year									
	17-18		18-19		19-20		20-21		21-22	
BIOL 120						C	C	C		
BIOL 120 (H)									PRN	PRN
BIOL 121						C	C	C		
BIOL 122										
BIOL 122 (H)										
BIOL 123						C	C	C		
BIOL 369 BioCoaches						C	C	C		
BIOL 369 Patient Coordinators										
BIOL 397 Clinical research										



Goals for 2020-21 and next year…

Completed	Ongoing After COVID…Coming in 21-22
Adapted curriculum in BIOL 120 - 123, including shorter labs with new online components.	Fully implement an entire semester of the new BIOL 121 curriculum in all sections (F21).
Continue work toward standardization in BIOL 120 to include Dr. Galindo.	Fully implement the Learning Assistants (BIOL 369) into the BIOL 120 classroom (F21).
Begin conversations with BIOL 122 involved faculty including a needs assessment for revision.	Begin to standardize BIOL120 across sections.
Increase work with CITL: Two online panels and participating in the Gateway Initiative (Su21-F21)	BIOL 120 faculty observe new BIOL 121 content…hopefully in F21
Attended & presented at another conference (on Learning Assistants)	BIOL 120 & 122 faculty observe new LAs in BIOL 120…hopefully in F21
Begin one manuscript (published with Dr. Sighn and McElroy)	Develop & test new BIOL 123 modules (inquiry-based)
Integrated more faculty research into the labs.	Continue conversations with BIOL 122 faculty/ needs assessment
PD in learning assistants: Currently working on a grant regarding Learning Assistant PD	DNA analysis in BIOL 121 (no time during 55m lab). Permits for Bushmeat (Spring-ongoing) IDEA from Nancy
Develop one new BIOL 123 unit this summer, before submission	Devise new TA training on PBL (on hold)

Research

- The effects of using HIPs in gateway courses on student success and retention **(re-starting F21).**

- Learning Assistants in the General Biology Lecture Hall: How peer mentoring and small groups can transform the student experience in large lectures **(re-starting F21).**
- 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 **(re-starting F21).**
- 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 **(re-starting F21).**
- Identifying the impact of increased inquiry-based techniques into the biology curriculum across courses and cohorts. I am working with Ms. Naomi Rowland on this project **(preliminary analysis complete, re-starting F21).**

- Published: Singh, A., Mountjoy N, McElroy D, Mittal S, Al Hemyari B, Coffey N, Miller K, Gaines K. 2021. Patient Perspectives With Telehealth Visits in Cardiology During COVID-19: Online Patient Survey Study. JMIR Cardio 5(1).
- Comparing COVID vaccine side effects in clinical vs. real-world applications, across brand types Moderna, Pfizer, and Johnson & Johnson, with med Center Health & Dr. McElroy

---

- What students need a priori: Survey of students and faculty resulted in a new Ogden Technology statement, flyer for orientation and mailers: https://www.wku.edu/ogden/tech_recs.php

20-21 Activity Report

Course Statistics

Semester	Course	Sec	N	Mean	A	B	C	D	F	TAs	Managed Sections	Total Students
F20	120	701	151		23	46	51	17	12	-	-	151
	121	-	-	-	-	-	-	-	-	4	11	307
	123	1	31	82.07	6	16	6	2	1	2	8	239
	123	7	28	80.24	6	12	5	3	2			
S21	120	702	125	73.84	13	33	51	17	11		-	125
	121	-	-	-	-	-	-	-	-	3	9	254
	123	3	31	88.86	16	13	0	2	0	2	7	202
	369	-	1	-	1	-	-	-	-	-	-	1
	475	-	1	-	1	-	-	-	-	-	-	1
F17 to Date Totals			1390							41	129	4164

Planning & Curricular Changes

- Completed revision of BIOL 120 into all-online curriculum with Dr. Wyatt
- Introduced new assignment, quiz and exam regimen in BIOL 120
- Completed lab revisions in BIOL 121 and BIOL 123 to fit into the COVID-shortened timeline
- Two new independent study courses:
    - Biology 475-Special Projects in Biology: COVID timeline & protocols in the Green River Health District (N=1)
    - BIOL 399: COVID vaccine reactions in clinical trials vs. real-world application (N=1)
- Two new courses with Dr. McElroy coming in F21
    - BIOL 369 Cooperative Education in Biology: Patient Coordinator Internships with Med Center Health (N=12)
    - BIOL 397 Scientific Process: Clinical Research with Med Center Health (N=15)

New Practices & Technology

- SLACK App for easy course communication
- Added additional videos to YouTube Channel for BIOL 120 and BIOL 121
- Mastering data analysis (via Pearson)
- OnDemand Tutoring via Mastering

New Professional Development

- WKU-CITL Gateway Initiative, 6-week course participant. June thru July 2021.
- Course Review: Mastering Gateway Course Success Project. January thru June 2021.
- Biology Leadership Community Summit, invited participant, Online Conference. March 2021.
- Keeping it After Covid: Participant & Facilitator, WKU-CITL November 2020.

New & Ongoing Service

- 2020-current Department of Biology Strategic Planning Committee Member
- 2020-current Science advisor to WKHL and the Medical Center
- Gatton Academy Interview Day
- Focus on High Impact Practices: Creative Uses of Honors Faculty Engagement Grants, Student Success Summit Group Presentation, WKU [invited]
- CITL Faculty Development Webinar: Keeping it After Covid [invited and lead]

SITES ANALYSIS for Continuance Packet 20-21

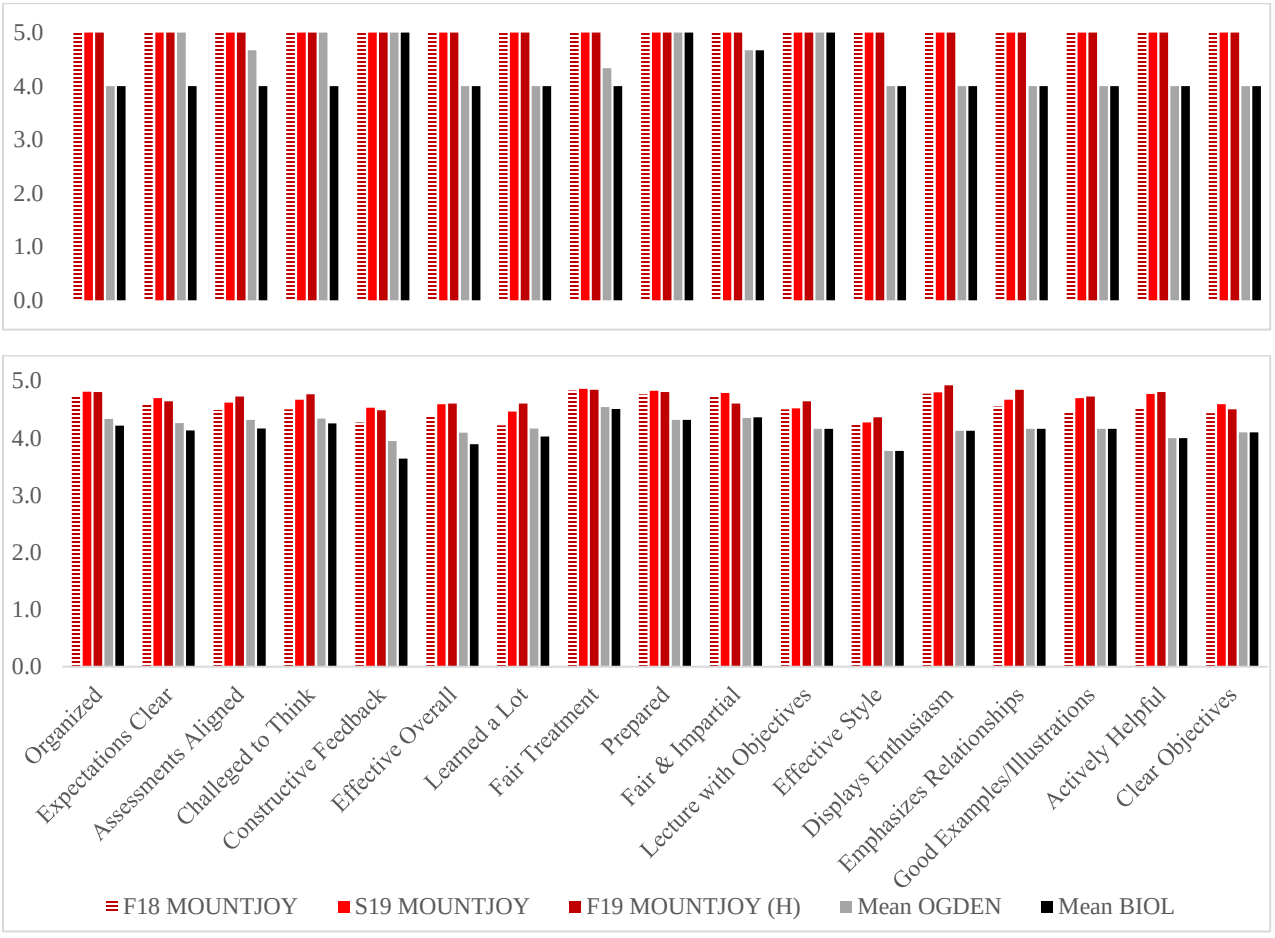


Figure 3A. BIOL 120 course evaluation medians (top) and means (bottom) across all questions compared with the mean Ogden and Biology Department scores over the same period (F18-F19).

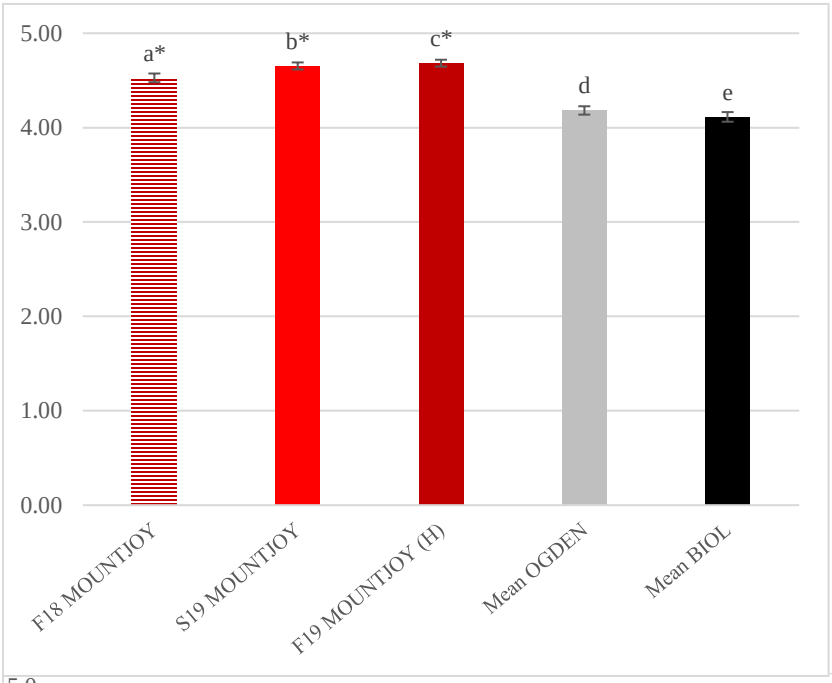


Figure 3B. BIOL 120 mean scores with standard error, vs. the Biology Department and Ogden College. Kruskal-Wallis test, using Chi-Square distribution (H = 55.60, p < 0.0001, df = 4) and pairwise post hoc analysis (a vs d H = 16.41, a vs e H = 19.17, b vs d H = 21.83, b vs e H = 23.30, c vs d H = 23.84, c vs e H = 23.67) showed the mean for MOUNTJOY's scores to be significantly higher (*) than those for Ogden and the Biology Department each semester (p < 0.0001). There was no significant difference between MOUNTJOY's scores across semesters (return to cover letter or Table 2).

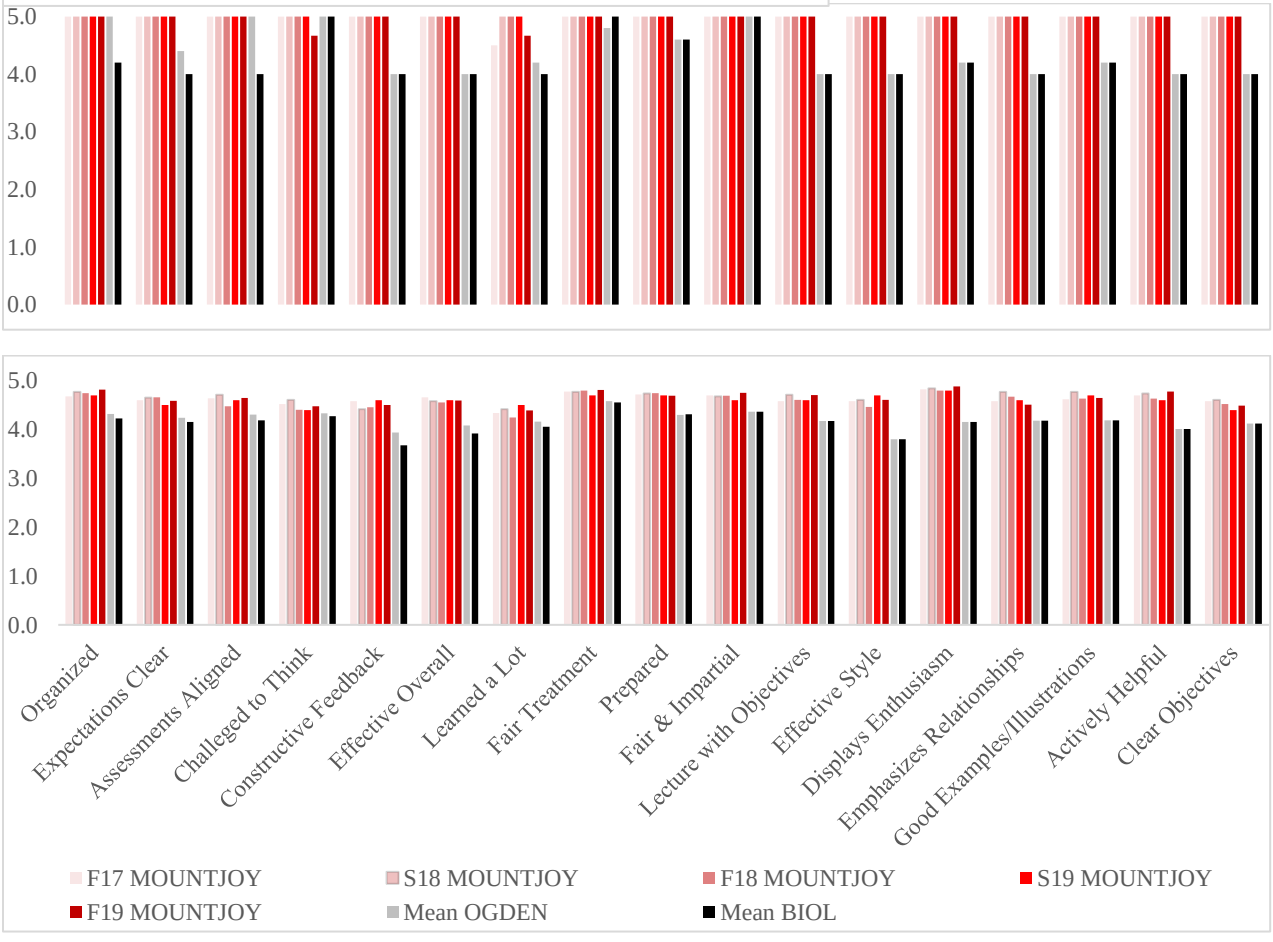


Figure 4A. BIOL 121 course evaluation medians (top) and means (bottom) across all questions compared with the mean Ogden and Biology Department scores over the same period (F17-F19).

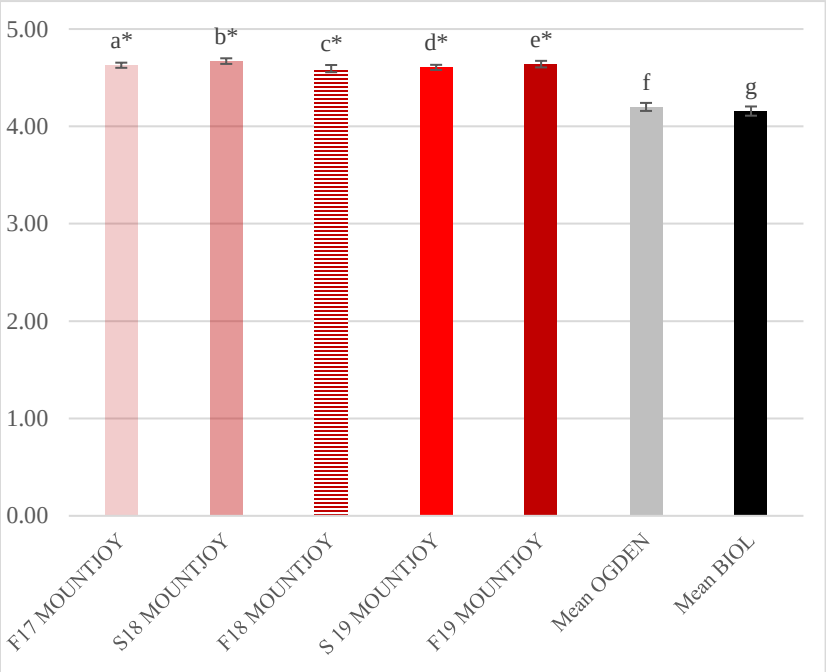


Figure 4B. BIOL 121 overall mean scores with standard error, compared with the Biology Department and Ogden College.

Kruskal-Wallis test, using Chi-Square distribution ($H = 69.5293$, $p < 0.0001$, $df = 6$) and pairwise post hoc analysis (all comparisons a-e vs f and g, $H = 20.67$-24.16) showed the mean for MOUNTJOY's scores to be significantly higher (*) than those for Ogden and the Biology Department each semester ($p < 0.0001$). There was no significant difference between MOUNTJOY's scores across semesters (return to cover letter or Table 2).

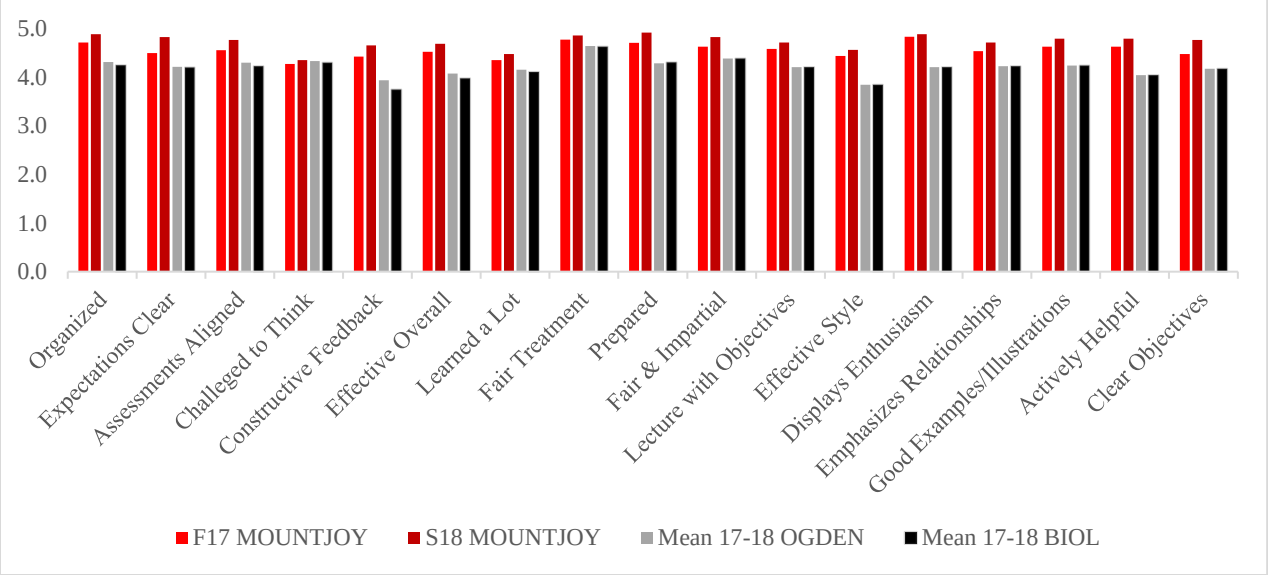


Figure 5A. BIOL 123 course evaluation medians (top) and means (bottom) across all questions compared with the mean Ogden and Biology Department scores over the same period (17-18).

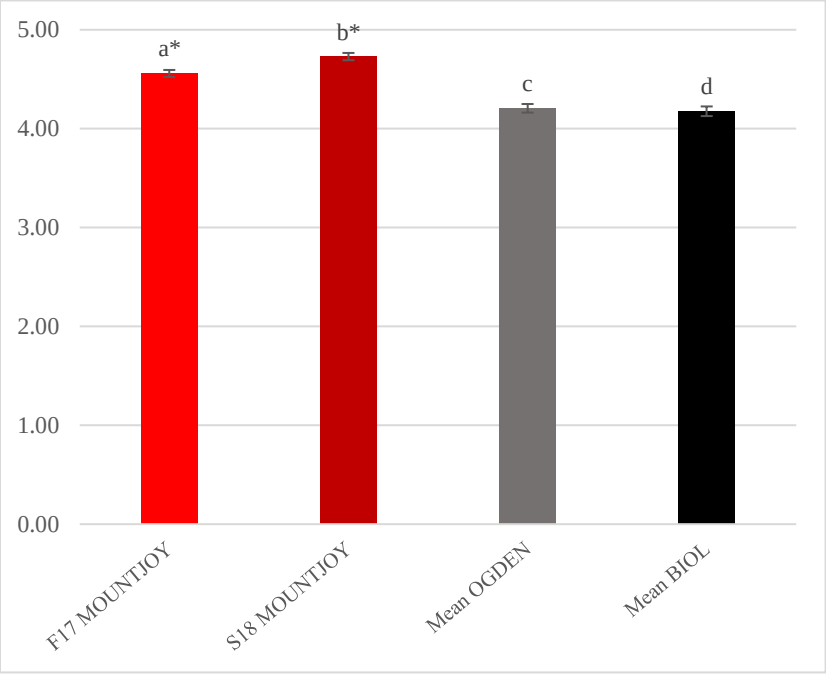


Figure 5B. BIOL 123 overall mean scores with standard error, compared with the Biology Department and Ogden College. Kruskal-Wallis test, using Chi-Square distribution ($H = 46.30$, $p < 0.0001$, $df = 3$) and pairwise post hoc analysis (a vs c $H = 18.71$, a vs d $H = 19.78$, b vs c $H = 21.77$, b vs d $H = 23.45$, c vs d $H = 23.45$) showed the mean for MOUNTJOY's scores to be significantly higher (*) than those for Ogden and the Biology Department. There was also a significant increase in MOUNTJOY's scores between the fall and spring semesters ($H = 9.1025$, $p < 0.001$) (return to cover letter or Table 2)

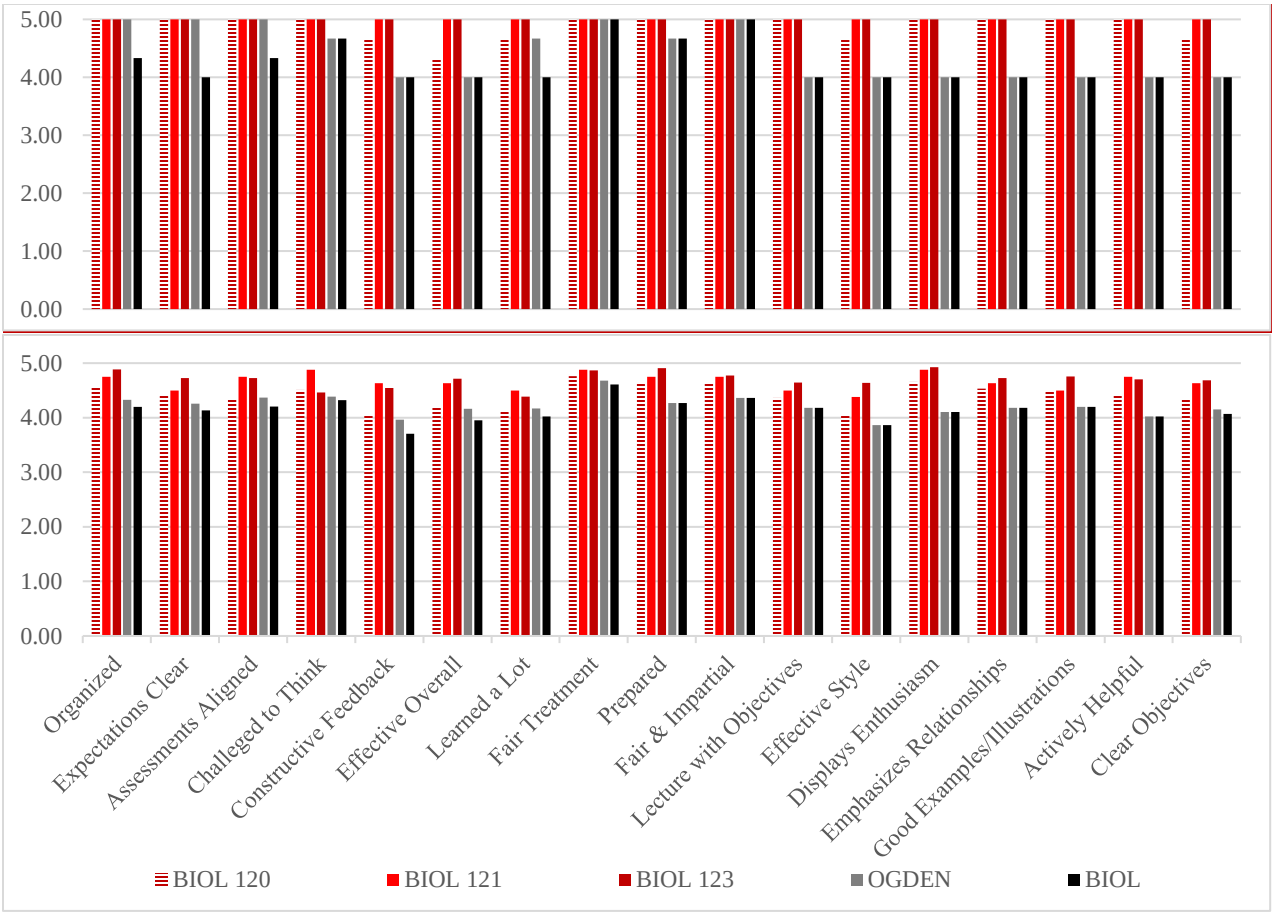


Figure 6A. COVID-19 (S20-S21) course evaluation medians (top) and means (bottom) across all questions from MOUNTJOY BIOL 120, 121, and 123 vs. the mean Ogden and Biology Department scores across the same semesters.

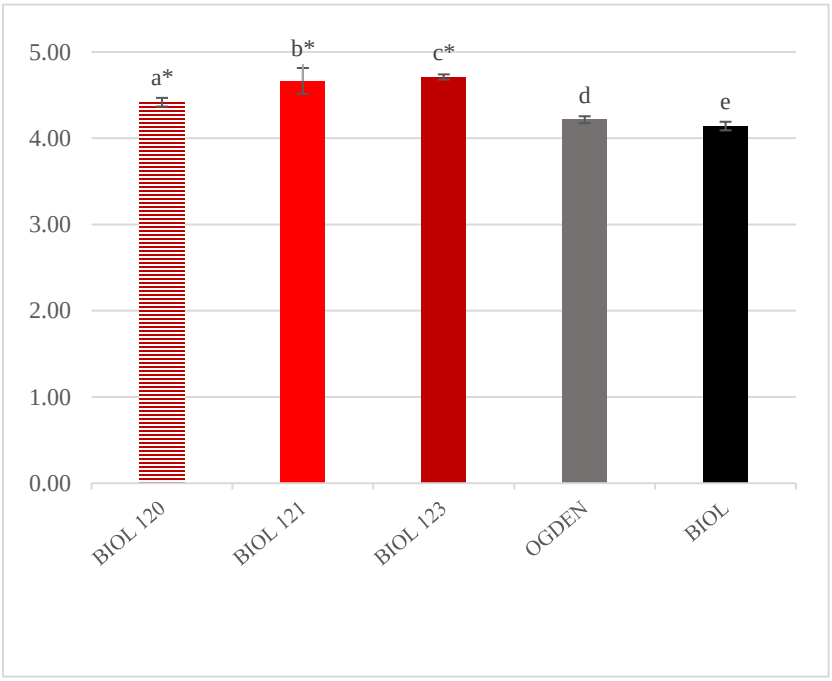


Figure 6B. MOUNTJOY scores across all questions, for BIOL 120, 121 and 123 vs. Biology Department and Ogden College during COVID semesters. Kruskal-Wallis test, using Chi-Square distribution ($H = 55.55$, $p < 0.0001$, $df = 4$) and pairwise post hoc analysis (a vs d $H = 6.77$, a vs e $H = 12.16$, b vs d $H = 21.77$, b vs e $H = 24.75$, c vs d $H = 22.95$, c vs e $H = 25.26$) showed the mean for MOUNTJOY's scores to be significantly higher (*) than those for Ogden ($p < 0.01$) and the Biology Department ($p < 0.001$) across the three COVID semesters (S20-S21; return to cover letter or Table 2).

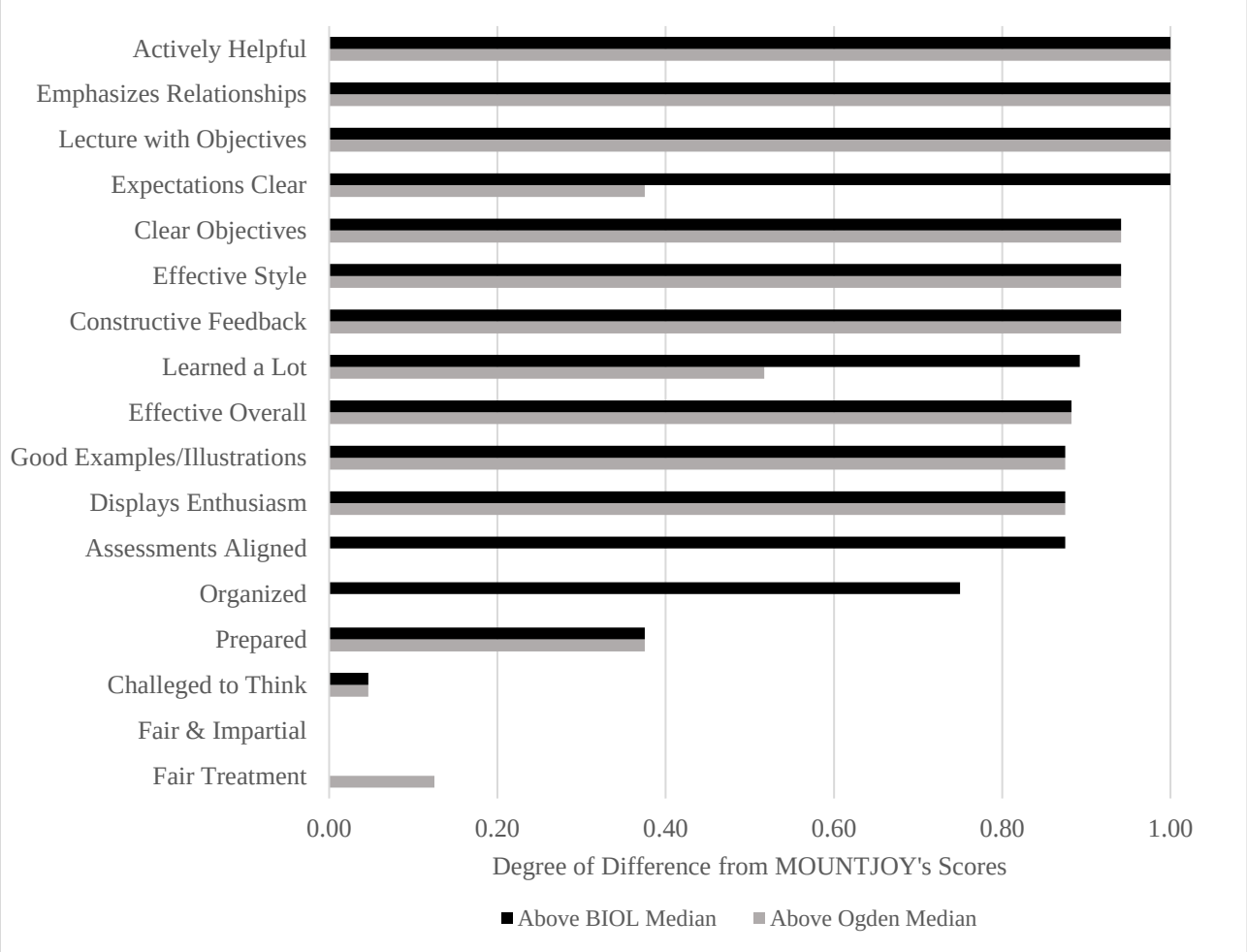


Figure 7. Difference between Mountjoy median scores and Ogden and Biology Department median scores for each item, averaged across all courses and semesters (F17-S21). For example, Mountjoy's median scores are, on average, one point higher for the item "Actively Helpful" than for Ogden or the Biology Department. Items ordered by descending degree of difference between Mountjoy Median and Biology Median scores. Where bars are absent, the scores showed no difference (return to cover letter or Table 2).

Post meeting comments added by Mentor:

Teaching

Dr. Mountjoy has contributed greatly to the department in the area of teaching. She was the recipient of the Outstanding Teaching Award for the University, an affirmation of her teaching quality. This year she co-taught Biology 120 online with Dr. Wyatt due to the COVID pandemic. This effort required collaboration and innovation to introduce new technologies and assignments to engage students. She introduced two new Independent Study Courses Biology 475-Special Projects in Biology and Biology 399-COVID Vaccine Reactions in Clinical Trials and developed two new courses

with Dr. McElroy, Biology 369- Cooperative Learning in Biology, which will offer credit for shadowing at the Medical Center and Biology 397- Scientific Process-Clinical Research with the Medical Center, which will provide another process course for students in the department. Dr. Mountjoy has made great progress in completing the transformation of the Biology 121 lab to a more inquiry-based experience and has started the process of standardizing all labs to this format. She has also started the initial phases of revising the Biology 123 lab and plans to start teaching the new curriculum in 2021-2022. Dr. Mountjoy's timeline for curriculum development and implementation is included in her tenure packet. She has also implemented a Bio-Coach Learning Assistant Program and plans to continue this program in the fall. Dr. Mountjoy's teaching is a strength for the department.

Research

Although research is not a formal part of her position, Dr. Mountjoy is interested in moving pedagogy through research. Examining the efficacy of the Learning Assistant Program is one project that she plans to continue as well as the study of High Impact Practices in the classroom. Other research projects that will start back after an interlude due to COVID19, include Metacognition, the Impact of Inquiry in the Biology curriculum and analyzing the persistence rates of At-Risk students. Dr. Mountjoy published one paper in conjunction with the Medical School at the Medical Center on *Patient Perspectives on Telehealth during COVID 19*. Dr. Mountjoy's research efforts are above her what is required for her position and all of these projects inform instruction and impact student learning.

Professional Development

Dr. Mountjoy is active in Professional Development. She has led sessions with CITL and participated in online conferences and summits. She is participating in the WKU-CITL Gateway Initiative to improve introductory level courses at WKU. Dr. Mountjoy continues to take advantage of opportunities to learn and improve her courses.

Service

Dr. Mountjoy is also an active member of the department and college serving on Biology Strategic Planning Committee and serves as Science Adviser to WKHL and the Medical Center. She has assisted with Gatton Academy Interview Day. She attends faculty meetings, seminars and serves where needed in the department.

Dr. Mountjoy is an outstanding member of the Department of Biology and contributes to the mission of the department and university. She has met most of her teaching, service and research goals and is well on her way to earning tenure. The mentoring committee is pleased with her efforts and recommends that Dr. Mountjoy continues in her role in the department to maintain teaching excellence and serve the students.

Natalie J. Mountjoy 6-25-21

(Mentee-Dr. Natalie Mountjoy)

Kerrie McDaniel 6-14-21

(Mentor-Dr. Kerrie McDaniel)

Scott A. Grubbs 19 July 2021

(Coordinator-Dr. Scott Grubbs)

Michael E. Smith

Digitally signed by Michael E. Smith
DN: cn=Michael E. Smith, o=Western Kentucky University, ou=Department of Biology, email=michael.smith1@wku.edu, c=US
Date: 2021.07.20 09:04:09 -05'00'

(Department Chair-Dr. Michael Smith)