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Setting the Foundation for Experiential Learning and Academic Success in MBIO 101: Introduction to the Microbiology Major

Brandi Sigmon

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**Setting the Foundation for Experiential Learning and Academic
Success in MBIO 101: Introduction to the Microbiology Major**

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ABSTRACT

Introductory courses for majors, typically completed by first-year students, are important to student success and retention as they set the foundation for students in their respective majors. At the University of Nebraska-Lincoln, Microbiology majors complete MBIO 101: Introduction to the Microbiology Major during their first semester as their introductory, foundational course. In this course portfolio, I chose to focus on investigating the impact on student learning of integrating more emphasis on experiential learning knowledge and acquisition within the course through the participation of students in a hands-on workshop and research symposium. Integration of these two events into the MBIO 101 curriculum enhanced student confidence in both knowledge and acquisition of experiential learning while not compromising progression towards achievement of the other learning outcomes in the course. Continued inclusion of these activities into MBIO 101 will help set a sound foundation for academic success for Microbiology majors.

Key words: Microbiology, experiential learning, active learning, career development, introductory course

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OBJECTIVES AND COURSE DESCRIPTION

Objectives of Course Portfolio

For this course portfolio, I selected to focus on my Microbiology 101: *Introduction to the Microbiology Major* course. There are several reasons I selected this particular course. The first reason is this course is foundational to student success and retention for the major. It is required by incoming freshmen to take this course and it serves to help build a cohort of students as they come to UNL. In the Microbiology major, students will not have another Microbiology course until either their second semester of their second year or the fall semester of their third year. Therefore, this course is instrumental in the building of community in the major as students may not otherwise have the opportunity to interact with other Microbiology students in their other courses early in the program. Secondly, having first been taught during the fall of 2018, this course is still relatively new and growing. As such, there is still much room to improve the course and make sure we are meeting our course and program goals. Finally, I chose *Introduction to the Microbiology Major* because our program has larger goals to better incorporate experiential learning for our students into our program's curriculum. Historically, this course has emphasized the importance of experiential learning for students, but having identified barriers to acquisition of these opportunities, I would like to make changes in the course content to improve participation by laying a better foundation of awareness for students in MBIO 101. By ensuring our students participate in hands-on lab training in particular, our academic program will be ensuring not just academic success but also better career preparation as they graduate and enter the workforce.

My objectives for the course portfolio center on increasing awareness of the importance of experiential learning in the Microbiology major and helping students overcome barriers in participating in these activities. In past student surveys conducted in 2018 and 2019, all of my MBIO 101 students were interested in participating in undergraduate research, but many were not confident in acquiring this experience. Students typically are not aware of the variety of experiential learning experiences available to them (e.g. internships, undergraduate research assistantships, teaching assistantships, education abroad, etc.) and they do not know how to acquire these opportunities. Finally, misconceptions about when to get this experience is common among my students. For example, most MBIO 101 students erroneously believe they need to be a third- or fourth-year student in order to be an attractive candidate for campus labs when in fact most labs prefer to hire first- or second-year students. Being aware of these challenges, I plan to focus on updating my course goals, learning objectives, and activities/assessments to address these issues surrounding experiential opportunity perception and acquisition among students in MBIO 101 without compromising progress towards the other important course outcomes for students.

Once complete, this course portfolio will be used in multiple ways to address both my personal career development and the Microbiology program's curriculum goals. The portfolio will be important to the Microbiology program's larger goals toward better integration of experiential

learning into the curriculum. The impact of the changes in MBI0 101 through this process will help inform the program's decision-making concerning the approach and effectiveness of better experiential learning integration for MBI0 101 and if this model can be used for other courses in the program and/or if we can better scaffold from the foundation started in MBI0 101.

Description of the Course

MBIO 101: *Introduction to the Microbiology Major* was first developed and taught in 2018 to serve as an introduction to the major by providing an overview of Microbiology as a field of science, as well as possible career paths, and opportunities available to Microbiology majors. The course provides a foundation to incoming first-year Microbiology students to enhance student success in the academic program. Throughout the semester, the students progress through three modules focusing on 1) orientation to the major and UNL resources, 2) foundational Microbiology-related content, and 3) opportunities including experiential learning opportunities in research and leadership as well as potential careers in Microbiology. Class-time is spent on a combination of lectures, guest speakers, in-class activities and reflective discussion. Outside of class, students complete online quizzes on lecture content, complete an academic plan, resume, and reflection paper. Below shows details relating to my course, course goals, and a list of specific outcomes students are expected to perform by the end of the term.

Course Details for MBI0 101

Subject	Microbiology
Course	Introduction to the Microbiology Major
Course Level	Mostly first-year with a couple second-year Microbiology majors
Number of Students	Between 15 and 25
Meeting Time	One 50-minute class session per week

Course Goals for MBI0 101

1. Understand UNL systems and resources available to students
2. Gain an understanding about Microbiology as a field of science
3. Develop a plan toward academic and career preparation
4. Gain awareness of career and experiential learning opportunities in Microbiology

Course Learning Objectives for MBI0 101

1. Develop a plan for effective time management and academic plan to graduation (connects to goals 1 and 3).

2. Demonstrate basic knowledge of the history of Microbiology, the present challenges in the field, and possible future directions (connects to goal 2).
3. Develop a personalized career preparation plan including experiential opportunities and draft a resume for future application (connects to goals 1 and 4).

Students coming into MBIO 101 have varying backgrounds and there is a wide range of previous exposure to Microbiology ranging from students who have completed Microbiology courses in high school and internships in labs to students who have only been briefly exposed to Microbiology through their high school biology course. After completing MBIO 101, I expect students to have a better understanding of Microbiology and how it differs from other life sciences. I also expect students to start thinking and planning more long-term towards their academic and future career goals. This skill is important to timely graduation, academic success, and career preparation for students.

For this course portfolio, I plan to better integrate and emphasize experiential learning awareness into MBIO 101. Though always part of the course goals and objectives, historically I have spent only one lecture focused solely on undergraduate research. During this lecture I would discuss the importance of gaining this experience and the many opportunities available to students. Following the lecture, students would have an online quiz through Canvas that would ask for them to identify specific experiential learning opportunities they would be interested in doing and to also identify a couple of UNL faculty members whose research appeals to them. Although these activities have increased awareness of the different types of opportunities somewhat for students, there is still a gap in opportunity attainment that needs to be addressed. For this project, I will focus on increasing awareness for students and also setting the foundation of closing this gap in experiential learning opportunity attainment by ensuring more class-time and activities are centered on this particular course goal. The primary intervention will be the inclusion of student participation in a hands-on workshop focusing on the mentor/mentee relationship and a research symposium, which will highlight the breadth of Microbiology-related research on campus and allow an important opportunity for students to network with other undergraduate and graduate students, as well as faculty and staff. In addition to the other course updates, I hope MBIO 101 students will better understand the importance of experiential learning in their major and feel more confident in pursuing these opportunities earlier in their undergraduate experience.

DESCRIPTION AND RATIONALE FOR TEACHING METHODS, COURSE MATERIALS, AND ACTIVITIES

Teaching Methods and Activities

MBIO 101: *Introduction to the Microbiology Major* is the first Microbiology-related course Microbiology majors will take as part of their undergraduate education. Therefore, this course helps to set the foundation for students in the major for all subsequent science courses, in particular. This course also serves to build a cohort of students within the major as the majority of students in the course are in their first semester at UNL. This cohort building, as well as sense of community is important to student success and retention within the Microbiology major. Contact time is once per week for 50 minutes. During this time, a combination of traditional lecture, guest lectures, and in-class discussion will be employed to facilitate students' achievement of all course goals and learning outcomes. No textbooks are used in the course and some handouts and worksheets are given depending on the lecture topic. After each in-person class, a short Canvas quiz will be used to emphasize key points, guide student reflection, and provide feedback on students' progress towards course goals and learning outcomes. In addition to these quizzes, students also have a few other assignments to be completed outside of class. One key assignment is to complete a draft of their academic plan to meet with their academic advisors to go over the plan and make edits if needed following two lecture periods on this topic. This assignment is key to course goal 3 which aims for students to be able to develop a plan for academic and career preparation. Also, this assignment empowers students to take control of their course planning and to also connect with their academic advisors, which is important to student success longer-term. Students will also complete a draft of their current resume following a guest lecture given by the career coaches in the College of Arts and Sciences and/or the College of Agricultural Sciences and Natural Resources, which is also tied to course goal 3. Finally, students complete a reflection paper for which the topics have varied from year to year, but in general students reflect on a topic in Microbiology and apply what they have learned to their own future career path, which has generally been tied to course goals 2 and 4. The course syllabus may be viewed in Appendix I of this portfolio.

These lectures, quizzes, and outside assignment stated previously have been employed in the course with minor content updates annually since the beginning of the course. However, providing a single lecture on undergraduate research has not been adequately meeting course goal 4, so some changes were made for the fall 2021 semester. This lecture was kept, but more class-time was devoted to the topic. Students enrolled in MBIO 101 were required to attend the MARVEL (Microbiology Achievement through Research and Valuable Experiential Learning) Workshop and the UNL Microbiology Research Symposium. Both the workshop and the symposium were scheduled to coincide with the usual lecture day and time, but extended by one hour. The purpose of the workshop was to bring together Microbiology-affiliated faculty, staff, and graduate students with undergraduate Microbiology majors including MBIO 101 students to engage in activities and conversations surrounding the mentor-mentee relationship including expectations of mentors and their undergraduate mentees. The workshop also included a

keynote talk from Dr. Angela McKinney from Nebraska Wesleyan University titled, “Effective Mentorship: The Mentor-Mentee Relationship.” The UNL Microbiology Research Symposium followed the workshop and brought together the Microbiology community on campus. Both graduate and undergraduate students presented their research posters while the MBIO 101 students had the opportunity to interact with the presenters along with other faculty, staff, and students. Information booths featuring the youth ambassador for the American Society for Microbiology and the UNL Microbiology Club were also present at the poster session. Finally, a keynote lecture presented by Dr. Jasmin Marcelin from the University of Nebraska Medical Center titled, “A MARVELous Look at Bugs, Drugs, Education, & Career Development” was given. The desired outcomes for MBIO 101 students were 1) to begin to build a network with other Microbiology-affiliated faculty, students, and staff, 2) to better understand the importance of experiential learning participation to career preparation, and 3) to be inspired by the breadth of research possibilities available on campus. Participation in experiential learning and in particular undergraduate research will result in better career preparation outcomes for Microbiology majors. Intervention in MBIO 101 will ensure more students understand the importance of these activities to their career preparation at an early stage in their undergraduate careers.

Products to determine student progress towards attainment of these outcomes for the MARVEL Workshop and UNL Microbiology Research Symposium included satisfaction surveys given after both events (Appendices III and IV), Canvas quiz questions, a reflection paper (Appendix V), as well as a pre- and post-course survey focused on student perceptions of surrounding participation in these events (Appendix II). The reflection paper required a synthesis of information obtained from the course including the workshop and symposium to their own individual educational and career paths. The pre-course survey was given to students on the first day of MBIO 101 class to provide a baseline of student understanding and confidence of experiential learning and career preparation. This survey consisted of questions utilizing a Likert scale in order to more easily quantify differences in student perceptions following completion of the post-course survey. The post-course survey consisted of the same questions as the pre-course survey and was given to the MBIO 101 students on the final lecture day of the course.

Illustration of Changes from Previous Years

Participation in the MARVEL workshop and UNL Microbiology Research Symposium is a large change in the course compared to previous semesters. To accommodate inclusion of the workshop and symposium, I have reduced the number of outside guest speakers in specific careers to two broader lectures on the main groups of career options for Microbiology majors (applied Microbiology and professional careers in healthcare). In previous semesters, the large number of guest speakers from various careers provided mixed value towards meeting course goals 3 and 4 as students would become disengaged if the speaker was not providing information on a career the student was interested in. However, since keynote speakers, faculty, staff, and graduate students were all present at both the workshop and symposium, I believe students were not restricted from exploring different career perspectives and networking opportunities due to this key change in the course. In fact, students should have much more opportunity to explore

careers and network under these new experiences than previously provided by MBIO 101. Progress towards course goals 3 and 4 will be partially assessed through the completion of a pre- and post-course surveys, which is also a change in the course from previous semesters. These assessments will probe students concerning their attitudes towards experiential learning and their confidence in pursuing these opportunities. The final major change from previous semesters is the topic of the reflection paper. Previously, students reflected upon major innovations in the field of Microbiology and applied what they have learned to their own career paths. This semester, students were prompted to reflect upon what they have learned concerning the benefits of experiential learning, to identify the opportunities most pertinent to their career trajectories, and to develop a plan to obtain these opportunities. This assignment provided a more in-depth assessment of student performance in progress towards course goals 3 and 4 than the pre- and post-assessment alone can provide.

Rationale for Teaching Methods

In past semesters the combination of lectures, guest lectures, discussions, quizzes, and outside assignments have been shown to adequately demonstrate student progress towards course goals 1 and 2. Evidence of this comes from a combination of sources including student evaluations, feedback from academic advisors, and faculty instructing subsequent courses. For example, since incorporating the academic plan lectures and assignments, students have become much more proactive in their academic planning and do not rely solely on last-minute advising from their academic advisors at the time of priority registration. Also, this combination of lectures and assignments are updated annually based on feedback from the academic advisors to incorporate any changes in the degree planning and course enrollment process for students. In addition, the combination of the career coach guest speakers and draft of the resume has also been successful in achieving progress toward course goal 3. Students appreciate the guidance and feedback towards developing a usable product in the form of the resume in order to pursue scholarships, internships, employment and other opportunities.

Despite these examples, not all course goals have been met uniformly. In particular, the awareness and acquisition of experiential learning (course goal 4) was not being adequately met through the single lecture and quiz devoted to the topic in previous iterations of the course. Therefore, the change to include participation in the MARVEL workshop and UNL Microbiology Research Symposium were designed to further emphasize the importance of experiential learning opportunities, inspire students to participate in these activities, and also to decrease the awareness and acquisition gap between different student populations in MBIO 101. The pre- and post-course surveys along with the reflection paper were added and/or modified as a way to not just assess student performance towards course goals, but to also encourage application of the learned material to each student's own personal goals and career aspirations. I expect the increased emphasis on this particular course goal through these added activities will enhance student progress towards this course goal than the previous single lecture and quiz.

ANALYSIS OF STUDENT LEARNING

The primary focus of this portfolio is analysis and impact of an increased emphasis on experiential learning knowledge and acquisition for MBI0 101 students. Assignments and assessments for the course focused on students' reflections and confidence in their knowledge of different experiential learning opportunities and how they fit into their respective career preparations. Also, particular questions on student assignments and assessments were used to gauge the potential impact on the other learning objectives for the course. The overall goal was to enhance students' awareness and confidence in experiential learning opportunities while not negatively impacting progress towards the other course goals.

The key additions to the course included participation in a hands-on workshop focusing on the mentor/mentee relationship and a research symposium featuring both undergraduate and graduate research posters, a keynote speaker presentation, and various information booths including a booth featuring a youth ambassador from the American Society of Microbiology, which is the main professional society for Microbiologists. From these key events, the goals were for students to gain a better understanding of what would be expected of them as an undergraduate researcher, what to look for in a good mentor, to begin networking with other Microbiology students and faculty, and to see the breadth of research possibilities on campus.



Figure 1: MBI0 101 students working on an activity at the MARVEL Workshop, which focused on mentor/mentee relationships. The workshop was held on October 22nd and included several activities and discussion as well as a keynote talk from Dr. Angela McKinney from Nebraska Wesleyan University (Photo credit: Loren Rye, Print/Photography Specialist, UNL).



Figure 2: Microbiology students, staff, and faculty interacting at the UNL Microbiology Research Symposium held on November 12th. The symposium featured research posters presented by undergraduate and graduate students, information booths, and a keynote talk by Dr. Jasmin Marcelin from the University of Nebraska Medical Center (Photo credit: Loren Rye, Print/Photography Specialist, UNL).

Assignments and Assessments

Several assignments and assessments were designed to capture the impact these activities had on student confidence and knowledge surrounding experiential learning and student progress towards the other course learning objectives.

1. Pre- and post-course surveys using a Likert Scale to gauge student confidence. These surveys were given on the first and last day of class, respectively.
2. Satisfaction surveys immediately following the workshop and symposium using both a Likert Scale and short answer responses. These surveys were used to measure the immediate satisfaction and impact after these events.
3. Weekly reflective quizzes in Canvas. These assignments were focused on the lecture content and measured progress towards course learning outcomes.
4. Products including individualized academic plans, resumes, and reflection papers. These student products were used to assess the application of course learning outcomes to their own individualized goals.

Analysis of Assignments and Assessments

The pre- and post-course survey was given on the first and last day of class to gauge each student’s current perceptions surrounding the planned content covered in MBIO 101. The survey consisted of 15 questions using a Likert scale. Increases in affirmative response (Agree and Strongly Agree) versus neutral and negative responses (Disagree, Strongly Disagree, Neither) at the end of the semester compared to the beginning of the semester, indicates perceived increases in student confidence towards those learning outcomes. From this data, there was a 91% increase in confidence in obtaining different kinds of experiential learning opportunities, 74% increase in confidence of knowledge of different research opportunities available to students, 67% increase in confidence of knowledge of different kinds of experiential learning opportunities, 48% increase in confidence of knowledge in expectation of undergraduate researchers, and 9.5% increase in plans to participate in undergraduate research. Most of these increases resulted in a 100% affirmative response rate from the students in the post-survey. From this analysis, it is clear that the activities and content from MBIO 101 resulted in large increases in student confidence and knowledge concerning experiential learning, generally.

Several of the remaining pre- and post-course survey questions can be used to assess the impact of the increased emphasis on experiential learning on the other learning outcomes for the course. It is important to determine whether the content did not over-emphasize this course goal to the detriment of the other goals in the course. The results from the pre-/post-survey indicated a 48% increase in confidence in accessing resources on campus, 48% increase in confidence developing an effective resume, 43% increase in confidence in careers in Microbiology, and 33% increase in confidence in knowledge of Microbiology as a field of science. These data support that increased emphasis on experiential learning during the semester did not negatively impact student perception of progress toward the learning outcomes in the course.

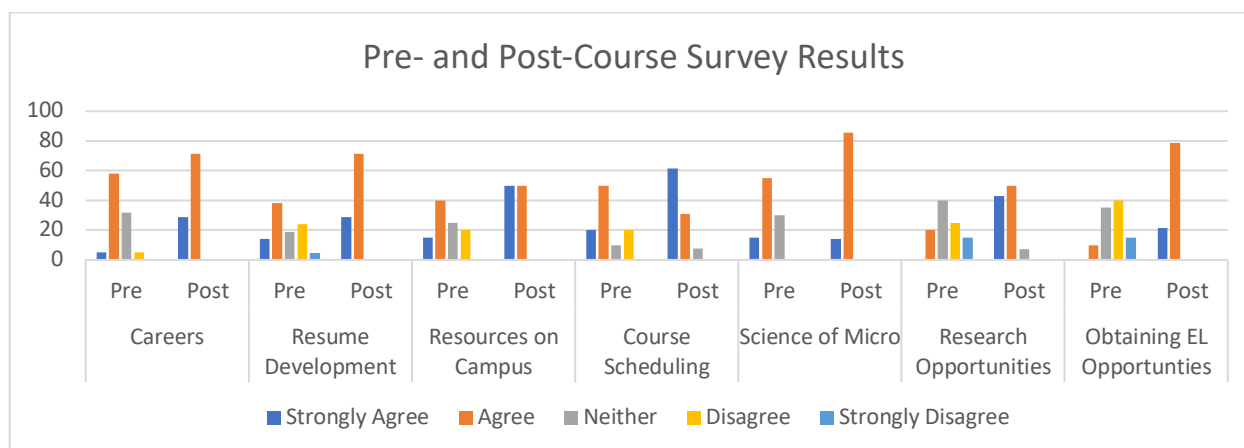


Figure 3: Graph illustrating percentages (y-axis) in response in questions relating to student confidence in achieving course outcomes pre- and post-course. Questions were identical in both surveys and utilized a Likert Scales (n=20, pre-course survey and n=14, post-course survey).

In the reflection paper assignment, students also demonstrated the value of participating in experiential learning opportunities and the importance of incorporating these opportunities with their career preparation plans. Many students were also able to identify transferrable skills they expect to obtain from these experiences and why these skills are important to their future careers:

Research is important for my future career because it helps me understand the scientific process, something that is incredibly important for the practice of medicine. Finally, I would also like to study abroad in a foreign country, to hopefully increase my cultural competency and enhance my global awareness. Both of these are important in a medical setting because they are required to interact with patients and providers from different backgrounds than you (Kai Waddell, MBIO 101 student).

Student Feedback

During class discussion, students said they enjoyed participating in the both the workshop and symposium. Many thought they would have not been likely to attend, especially the symposium, if these events were not incorporated into the MBIO 101 course. This is because as introductory students, they would not have realized these events would have been meant for them. Some students also expressed that they would have intended to attend the events, but would have likely missed them by accident. Many students stated that they plan to attend the events next year too and plan to attend other research symposiums available to them.

SUMMARY: REFLECTION ON THE COURSE

Course Successes

Key course successes from this semester include the gains in knowledge and understanding of the importance and value for Microbiology undergraduates to be involved in experiential learning as part of their educational experience. MBI0 101 students gained confidence in obtaining these positions and increased their knowledge both in the types of experiential learning available to them and what would be expected of them as undergraduate researchers. By the end of the semester, 32% of students enrolled in MBI0 101 had already joined a lab on campus to participate in undergraduate research with many others beginning to start their search for a position starting the following semester.

As evidenced in the reflection papers, a broader success of the course was in the empowerment of students to go after their goals. For many students the lack the specific knowledge and confidence was acting a hinderance to them seeking out opportunities. After completion of the course, students felt the content of the course to be broadly applicable and beneficial to their overall success as a college student. One response from a student in the reflection paper assignment illustrates the course's value to him, even though he had changed his major by the end of the semester:

I can confidently say that I learned the most in MBI0-101 in my first semester in college. I think one of the reasons for this is solely since this class was not only enjoyable, but also very engaging. The guest speakers and their presentations were always helpful, and I feel as though I expanded my knowledge far beyond the field of Microbiology during these lectures....This course taught me so much about college life, and especially helped me learn a lot about the difference in college and high school. I have utilized many of the resources taught to us in your class, all of which have proved to be beneficial in the long run.

Opportunities for Improvement

For lecture content, one potential area of improvement would be to expand upon the content provided for experiential learning opportunities. From the variety of experiential learning opportunities of interest to MBI0 101 students, undergraduate research has the strongest interest (Figure 4) which was expected, but students also had other key interests. Currently, these other types of experiential learning opportunities are briefly discussed in lecture. However, given the stated interests in educational abroad and teaching/learning assistantships, more emphasis on these activities will be considered in future offerings of MBI0 101.

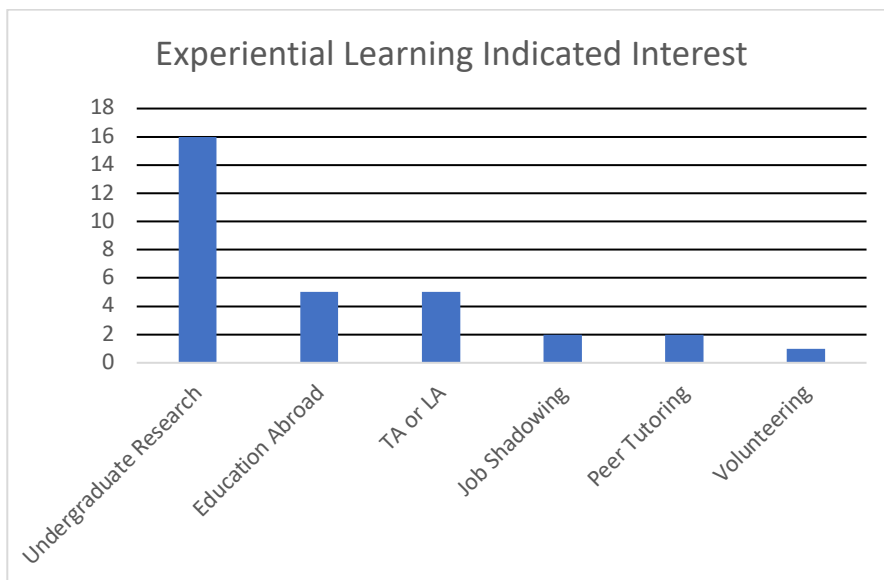


Figure 4: Data collected from a Canvas quiz question, “Out of all the experiential learning opportunities we discussed in class, which one(s) are you interested in pursuing?” Graph indicates strong interest in pursuing undergraduate research along with other interests in education abroad, etc. Students could select more than one experiential learning interest, n = 18 responses.

Following the successes of the workshop and symposium and the positive impacts on students in MBIO 101 and beyond, I plan to keep both of these events as part of the MBIO 101 curriculum. Each year will highlight a different theme for the workshop as well as different keynote speakers so that Microbiology students will continue to benefit from attendance each year. One key improvement going forward will be to encourage more faculty, staff, and graduate students affiliated with Microbiology to attend both events. MBIO 101 students valued the opportunity to network and interact, but want to be able to do so at a higher level. This goal may be accomplished by thoughtful construction of activities and discussions during the events and better targeted marketing to departments to encourage attendance. The hope is after a couple years, these events will become a part of the culture of Microbiology at UNL and be key, community building events. If this is achieved, then student sense of belonging, success, and retention will improve in this interdepartmental/inter-college Microbiology program.

APPENDICES

I. M BIO 101 Syllabus

This course serves as an introduction to the Microbiology major by providing an overview of Microbiology as a field of science, possible career paths, and opportunities available to Microbiology majors.

This course is intended for incoming freshman and sophomore-transfer students into the Microbiology major. Juniors and seniors should contact their assigned advisor to determine the suitability of this course.

Objectives:

1. Gain a basic understanding of the subject matter and breadth of Microbiology as a field of science.
2. Have exposure to many of the career opportunities available to Microbiology majors.
3. Start developing a career trajectory and determine what is required to reach your goals.
4. Gain a working knowledge of UNL systems and resources to enhance student success.

Instructor:

Dr. Brandi Sigmon
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Class Meets: Fridays from 3:00-3:50pm in E106 Beadle Center. On October 22nd, students will participate in a workshop in the Heritage Room in the Union on city campus and on November 12th, students will participate in a research symposium located in the atrium of the Beadle Center on city campus.

Office Hours: Please contact me for an appointment and we can set up a time to meet via Zoom. Otherwise, I can also meet before and after class on Fridays.

Textbook: None---Students will need a computer to access course materials in Canvas and for Zoom meetings (if needed).

Final Exam: None

Grading: Lecture Response Quizzes: 120 points (10 points per quiz)
Academic advising appointment (with academic plan draft): 30 points
Resume: 30 points
Reflection paper: 30 points

Late Assignments:

Assignments turned in after the deadline will automatically be worth 50% fewer points than assignments turned in on time. Assignments will not be accepted beyond 3 days after the due date.

Extra Credit: Attend two meetings of the Microbiology club this semester-5 points each

Final Grade:

99%	A+	88%	B+	78%	C+	68%	D+
92%	A	82%	B	72%	C	62%	D
90%	A-	80%	B-	70%	C-	60%	D-
						< 60%	F

Academic Integrity:

Students are expected to adhere to guidelines concerning academic dishonesty outlined in Section 4.2 of University's Student Code of Conduct. Violations of this policy will result in a minimum sanction of a grade of zero being given for the graded item on which the violation occurred, and may include other actions, such as an F for the course. All incidents will be reported to the Dean of Students. Behavior and remarks that disparage persons or activities in the course, or detract from a serious learning environment are not tolerated.

Students with disabilities:

Students with disabilities are encouraged to contact me, or a teaching assistant, for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodations to students with documented disabilities that may affect their ability to participate fully in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787.

Emergency Procedures:

Fire Alarm: In the event of a fire alarm, gather belongings and use the nearest exit to leave the building. Do not use elevators. After exiting notify emergency personnel of the location of the persons unable to exit the building. Do not return to the building unless told to do so by emergency personnel.

Tornado Warning: When sirens sounds move to the lowest interior area of the building or designated shelter. Stay away from windows and stay near an inside wall when possible.

Active Shooter:

- *Evacuate*-if there is a safe escape path, leave belongings behind, keep hands visible and follow police officer instructions.
- *Hide out*-If evacuation is impossible, secure yourself in your space by turning out lights, closing blinds, and barricading doors if possible.
- *Take action*-As a last resort, and only when your life is in imminent danger, attempt to disrupt and/or incapacitate the active shooter.

UNL Alert: Notifications about serious incidents on campus are sent via text message, email, unl.edu website, and social media. For more information go to: <http://unlalert.unl.edu>

Additional Emergency Procedures can be found here:

http://emergency.unl.edu/doc/Emergency_Procedures_Quicklist.pdf

Resources for Stress:

UNL offers a variety of options to students to aid them in dealing with stress and adversity. Counseling and Psychological & Services (CAPS) is a multidisciplinary team of psychologists and counselors that works collaboratively with Nebraska students to help them explore their feelings and thoughts and learn helpful ways to improve their mental, psychological and emotional well-being when issues arise. CAPS can be reached by calling 402-472-7450. Big Red Resilience & Well-Being provides one-on-one well-being coaching to any student who wants to enhance their well-being. Trained well-being coaches help students create and be grateful for positive experiences, practice resilience and self-compassion, and find support as they need it. BRRWB can be reached by calling 402-472-8770.

Face Coverings:

Currently, face coverings are required for in-person lectures for this course according to UNL policies. This may change at some point during the semester in response to changing conditions due to the pandemic. If you need accommodations, please contact the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787.

Microbiology 101 Fall 2021 Calendar

Date	Topic/Assignments
Aug. 27	Lecture 1: Introduction <i>Dr. Sigmon , Pre-course survey completed in-class</i>
Sept. 3	Lecture 2: Tools for Academic Success and Campus Resources <i>Center for Academic Success and Transition, Canvas Quiz 1 due</i>
Sept. 10	Lecture 3: Degree Planning: Planning for Graduation, part 1 <i>Dr. Sigmon and Academic advisors, Canvas Quiz 2 due</i>
Sept. 17	Lecture 4: Degree Planning: Planning for Graduation, part 2 <i>Dr. Sigmon and Academic advisors, Canvas Quiz 3 due</i>
Sept. 24	Lecture 5: Microbiology-A Brief History <i>Dr. Sigmon, Canvas Quiz 4 due</i>
Oct. 1	Lecture 6: Microbiology-Present Challenges <i>Dr. Sigmon, Canvas Quiz 5 due</i>
Oct. 8	Lecture 7: Microbiology-Future Directions <i>Dr. Sigmon, Canvas Quiz 6 due</i>
Oct. 15	Lecture 8: Experiential Learning Opportunities for Undergraduates <i>Dr. Sigmon, Academic Advising/Plan due, Canvas Quiz 7 due</i>
Oct. 22	MARVEL Workshop (3-5pm) <i>Heritage Room in the City Campus Union, Canvas Quiz 8 due</i>
Oct. 29	Lecture 9: Preparing for your future career <i>Guest speakers-Career Coaches, Canvas Quiz 9 due</i>
Nov. 5	Lecture 10: Careers in Applied Microbiology <i>Dr. Karrie Weber, Resume rough draft due, Canvas Quiz 10 due</i>
Nov. 12	MARVEL Research Symposium (3-5pm) <i>Beadle Center Atrium & room E103 (City Campus), Canvas Quiz 11 due</i>
Nov. 19	Lecture 11: Pre-professional Careers <i>Jaci Gustafson-Explore Center</i>
Nov. 26	Thanksgiving break No class, Canvas Quiz 12 due
Dec. 3	Lecture 12: Charting your academic and career path <i>Dr. Sigmon, Post-course survey completed in-class</i>
Dec. 10	<i>No class—to account for the extra time spent in class for the MARVEL workshop and symposium, Reflection paper due</i>

II. M BIO 101: Pre-/Post-Course Survey

1. I am confident that Microbiology is the right major for me.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

2. I am confident in my knowledge of potential careers in Microbiology.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

3. I am confident in my ability to schedule out my courses in order to complete a Microbiology degree.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

4. I am confident in my knowledge of Microbiology as a field of science.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

5. I am confident in my current knowledge of resources available to students at UNL.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

6. I plan to be involved in undergraduate research at some point during my time at UNL.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

7. I know what would be expected of me as an undergraduate researcher working in a lab on campus.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

8. I am confident in my current knowledge of research opportunities available to students at UNL.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

9. I am confident in my knowledge of the different kinds of experiential learning opportunities (e.g. undergraduate research, internships, etc.) available to students.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

10. I am confident in my knowledge of how to obtain different kinds experiential learning opportunities available to students.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

11. I am confident in my ability to develop an effective resume for pursuing employment, scholarships, and/or experiential learning opportunities.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

12. Currently, I am planning to enter the workforce after graduation from UNL.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

13. Currently, I am planning to attend graduate school and/or professional school after graduation from UNL.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

14. I understand how my education may prepare me for either the workforce or graduate/professional school.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

15. I understand how experiential learning opportunities may prepare me for either the workforce or graduate/professional school.

Strongly disagree Disagree Neither disagree/agree Agree Strongly Agree

III. MARVEL Workshop Satisfaction Survey

1. Currently I am a(n):

Undergraduate student

Graduate student

Postdoc

Staff

Faculty

2. If you are an undergraduate student, are you currently enrolled in MBIO 101?

Yes

No

3. I found the content of the speaker Dr. McKinney's lecture to be useful and informative.

Strongly Agree

Agree

Neither

Disagree

Strongly Disagree

4. I found the mentor/mentee expectations discussion and activity to be useful and informative.

Strongly Agree

Agree

Neither

Disagree

Strongly Disagree

5. I plan to attend future MARVEL events.

Strongly Agree

Agree

Neither

Disagree

Strongly Disagree

6. I plan to use the compiled mentor/mentee expectations document in the future.

Strongly Agree

Agree

Neither

Disagree

Strongly Disagree

7. Do you have any suggestions for potential topics for a future MARVEL workshop that pertains to diversity, equity, and inclusion?

8. Do you have any suggestions to improve the MARVEL workshop for next year?

9. What did you enjoy most about the workshop?

IV. UNL Microbiology Research Symposium Satisfaction Survey

1. Currently I am a(n):

Undergraduate student

Graduate student

Postdoc

Staff

Faculty

2. If you are an undergraduate student, are you currently enrolled in MBIO 101?

Yes

No

3. I found the content of the speaker Dr. Jasmine Marcelin's lecture to be useful and informative.

Strongly Agree

Agree

Neither

Disagree

Strongly Disagree

4. I found the poster session to be useful and informative.

Strongly Agree

Agree

Neither

Disagree

Strongly Disagree

5. I found the information booths to be useful and informative.

Strongly Agree

Agree

Neither

Disagree

Strongly Disagree

6. I plan to attend the UNL Microbiology Symposium in the future

Strongly Agree

Agree

Neither

Disagree

Strongly Disagree

7. How did you hear about the UNL Microbiology Symposium?

8. Why did you choose to attend the UNL Microbiology Symposium?

V. Reflection Paper Assignment Prompt

During this semester we have spent some time learning about the college experience, Microbiology as a field of science, possible careers in Microbiology, and the role of both academics and experiential learning in helping to prepare you for your future career. For this assignment, write a short (1-2 pages, single-spaced) reflective narrative that includes the following topics:

- 1) Reflection on your choice of future career: For example---Why does this career appeal to you? How did you become interested in this career? What would you like to achieve one day? What would you like to contribute to the world through your career? Etc.
- 2) Reflection on the academic preparation you will need to succeed: For example---What will you need to learn in your classes in order to prepare yourself? Why do you think it is important that you learn this information? Etc.
- 3) Reflection on your planned experiential learning opportunities you will need to succeed: For example---Which experiential learning opportunities (i.e. undergraduate research, education abroad, internships, teaching assistantships, etc.) do you plan to do? What do you expect to learn from these experiential learning opportunities? How will these experiential learning opportunities help prepare you for your future career? Etc.

If you are unsure of your future career, that is completely fine! Just pick one possible career that sounds interesting to you. Also, your career choice need not be Microbiology-related either as this assignment is broadly applicable to any future career!