3.) Faculty Narrative: Quality of the Student Learning Experience

a) Hands-on laboratory experience is a key training step for any student considering a research-oriented career. As a mentor, I take this responsibility very seriously and I work very hard to cater the research experience to fit with the goals of each student. [Student name omitted] plans on pursuing graduate school with a long-term goal of attaining a research position. A mentored research experience will paint a realistic picture of this career path and provide [student name omitted] with the technical skill set needed to be successful in this endeavor. [Student name omitted] has completed many upper level science courses and is currently enrolled in my Nucleic Acids Laboratory (BIO480) section. Therefore, she will begin the mentored research experience with a solid foundation in basic laboratory techniques. This project will combine methods she is familiar with while expanding her skill set to include advanced molecular biology, cell imaging and yeast genetics methods. In general, my goals for any independent research project are i) advance critical thinking skills, ii) develop independence and confidence in analytical skills and technique, and iii) broaden the student’s proficiency utilizing cutting edge methodology across related disciplines. It is clear that the barriers between scientific disciplines are quickly dissolving and students will be at an advantage if they are comfortable integrating their knowledge from multiple scientific fields. [Student name omitted]’s project will use a variety of methods that stem from biochemistry, cell biology, genetics and molecular biology. This approach will encourage [student name omitted] to first, think about the important biological questions we need to answer and second, apply the necessary methods to answer the questions.

b) This project will give [student name omitted] an opportunity to further her understanding of concepts introduced in the classroom with practical application in the laboratory. Some of the advanced methods used in the project are extensions of methods [student name omitted] is
familiar with from her coursework and some will be brand new. Knowing [student name omitted]’s previous experience in my courses, I will give her the freedom to execute familiar techniques independently. For new techniques, we will discuss the concepts behind the specific protocol and I will provide hands-on instructions while we perform the experiment together. From there, I will provide [student name omitted] with the opportunity to perform the experiment on her own. As [student name omitted] develops increasing confidence in her technique, I will encourage her to think through the experiment and come to me with a plan. Based on [student name omitted]’s motivation and academic record, it is my expectation that [student name omitted] will quickly gain technical independence and I will continue to foster her critical analysis skills.

c) Last summer [student name omitted] applied for a summer internship at Van Andel Institute. I wrote [student name omitted] a letter of support for this program and I was impressed when she received an interview for this after only completing her sophomore year. Knowing [student name omitted]’s motivation to gain practical experience in the laboratory, I approached [student name omitted] about several possible projects in my laboratory that fit her interests. She read primary research papers to get a better understanding of the possible projects and together we narrowed our ideas down to the project in this application.

d) [Student name omitted] is completing her junior year at GVSU working towards a BS in Cell and Molecular Biology (CMB) with a minor in Chemistry. [Student name omitted] came to us with an impressive academic record, permitting her acceptance to the Honors College. Her motivation to learn is very apparent, earning a spot on the Dean’s List every semester so far and an Outstanding CMB student award. Through [student name omitted]’s coursework and reading
of primary research articles related to this project, she has gained the necessary background to hit the ground running this spring.

e) As a junior faculty at GVSU, I mentored one part-time undergraduate student project. Results from the undergraduate project led to a fruitful collaboration that is ongoing with [faculty name omitted] at Boston College. Now in my second year, students are showing great enthusiasm towards my field of expertise and I’ve met with several students about possible projects.