## **Directed Studies Mid-Point Check-in**

Reviewer:

Directed Studies Student:

## **Independent Work**  **Substantial work required 1 2 3 4 5 Excellent**

* Understanding of project limitations 1 2 3 4 5
* Understanding the literature 1 2 3 4 5
* Understanding importance of project in the field 1 2 3 4 5
* Anticipating next steps of the project 1 2 3 4 5
* Planning out next step 1 2 3 4 5

**Strengths:**

**Areas of improvement:**

## **Project Development Substantial work required 1 2 3 4 5 Excellent**

* Researching background 1 2 3 4 5
* Contributing insight 1 2 3 4 5
* Actively interpreting results 1 2 3 4 5
* Critical thinking 1 2 3 4 5
* Active troubleshooting 1 2 3 4 5
* Seeking advice/help when needed 1 2 3 4 5

**Strengths:**

**Areas of improvement:**

## **Working Standards Substantial work required 1 2 3 4 5 Excellent**

* How many hours of active work/week? <5 5-10 10-15 15+
* Technical competency 1 2 3 4 5
* Record keeping 1 2 3 4 5
* Work areas organization and safety 1 2 3 4 5

**Strengths:**

**Areas of improvement:**

## **Mentoring Substantial work required 1 2 3 4 5 Excellent**

Think of your experience in the lab with you direct mentor and Carolina. What would you like to see more of? What would like to see less of? What would allow you to grow the most as a scientist in the areas outlined above?

**What is working well:**

**What I would like to see more of from my mentors:**

**What you would like to see less of from my mentors:**

**Grading Rubric for Directed Studies (minimally modified from the official MICB 448 rubric)**

The **grade between 95 - to - 100%** represents outstanding work. To fall in this range the student and the work must demonstrate all of the following features. The student did not need to complete the entire original proposal but should have made some progress.

* The **student could work relatively independently**. The student demonstrated that they knew the limitations of the study, the place that the work fits in the field, the significance of the project and the next steps in the project.
* The student consistently participated in the development of the project by researching background outside the original references provided by you. Throughout the project the student contributed significant insight into the results and technical problems rather than passively expecting you or their immediate lab supervisor to interpret their results, provide explanations and solve their problems. If there was no dialogue concerning the meaning of the results during the meetings of the supervisor and the student, then the student was probably not an active participant in the ongoing development of the project.
* The student put in at least 15 hours of active work per week on the project in an attempt to get results and complete the proposal. The student was technically competent. The student kept adequate records and did not need to keep returning to get instructions repeated. The work areas were organized and safe.
* The first copy of the final report was organized so that it had a professional appearance and excellent flow. There were no significant spelling or grammatical errors, all the important observations and controls were included, and the irrelevant observations were omitted. Critical thought and accurate consistent analysis were evident. The discussion clearly referred to the observations and clearly related the observations to the field of study by citing relevant references. The conclusion was an accurate statement that was based on the observed experimental results. The conclusion addressed the experimental purpose.
* The style was appropriate for an ASM journal submission and the content placed in the title, abstract, methods, results, discussion and reference sections were appropriate.

The **grade between 85 - to - 94%** represents very good work. To fall in this range the student and the work has the following features. The student did not need to complete the entire original proposal but should have made some progress.

* The student demonstrated that they knew the limitations of the study, the place that the work fits in the field, the significance of the project and the next steps in the project.
* The student consistently participated in the development of the project by researching background outside the original references provided by you. Throughout the project the student has been contributing significant insight into the results and technical problems rather than passively expecting you or their immediate lab supervisor to interpret their results, provide explanations and solve their problems. During meetings between the student and the supervisor there was significant dialogue concerning the results.
* The student put in at least 15 hours of active work per week on the project in an attempt to get results and complete the proposal. The student was technically competent. The student kept adequate records and did not need to keep returning to get instructions repeated. The work areas were organized and safe.
* The first copy of the final report was organized so that it had reasonable flow. There might have been **a few significant spelling or grammatical errors, but the important observations and controls were included,** and the irrelevant observations were omitted. **Some critical thought and analysis are evident and there were adequate references to relate the observations and conclusions to the field**. **The conclusion was an accurate statement that was based on the observed experimental results.** The conclusion addressed the experimental purpose.
* The style was appropriate for an ASM journal submission and the content placed in the title, abstract, methods, results, discussion and reference sections were appropriate.

The **grade between 80 - to - 84%** represents good work. To fall in this range the student and the work has the following features. The student did not need to complete the entire original proposal but should have made some progress.

* The student demonstrated that they knew the limitations of the study, the place that the work fits in the field, the significance of the project and the next steps in the project.
* The student interpreted the observations and contributed some insight into the results and technical problems **but tended to rely on you or their immediate lab supervisor to provide explanations and solve their problems. There was some dialogue, but the dialogue was limited.**
* The student put in at least 15 hours of active work per week on the project in an attempt to get results and complete the proposal. The student was technically competent. The student kept adequate records and did not need to keep returning to get instructions repeated. The work areas were organized and safe.
* The first copy of the final report was organized so that it had reasonable flow. **There might have been be a few significant spelling or grammatical errors**. **Most** of the important observations and controls were included but **the coverage was uneven so that one or two important observations might have been deemphasized or some irrelevant observations might have been included**. **Some critical thought and analysis was present and there were adequate references to relate the observations and conclusions to the field**.
* The style was appropriate for an ASM journal submission and the content placed in the title, abstract, methods, results, discussion and reference sections were appropriate.

The **grade between 76 - to - 79%** represents reasonable work. To fall in this range the student and the work has the following features. The student did not need to complete the entire original proposal but should have made some progress.

* The student demonstrated that they knew the limitations of the study, the place that the work fits in the field, the significance of the project and the next steps in the project.
* The student interpreted the observations and contributed some insight into the results and technical problems **but tended to rely on you or their immediate lab supervisor to provide explanations and solve their problems. There might have some dialogue, but it was limited.**
* The student put in at least 15 hours of active work per week on the project in an attempt to get results and complete the proposal. The student was technically competent. The student kept adequate records and did not need to keep returning to get instructions repeated. The work areas were organized and safe.
* The first copy of the final report **was a bit difficult to follow because the presentation did not flow logically, or some key points were not very clear**. **There might have been a few significant spelling or grammatical errors**. Most of the important observations and controls were included but **the coverage was uneven so that one or two important observations were missing, or several irrelevant observations were included**. **The critical thought and analysis were limited but there was some integration of the observations and adequate referencing was used in an attempt to relate the observations to the field of research**.
* The style was **mostly** appropriate for an ASM journal submission, but the content placed in the title, abstract, methods, results, discussion and reference sections **were not consistently appropriate**.

The **grade between 72 - to - 75%** represents adequate work. To fall in this range the student has done the work but had two or more of the following limitations. The student did not need to complete the entire original proposal but should have made some progress.

* The student interpreted the observations and contributed some insight into the results and technical problems but **tended to rely on you or their immediate lab supervisor or other students to provide explanations and solve their problems.**
* The student put in at least 15 hours of active work per week on the project in an attempt to get results and complete the proposal. The work was technically competent, and the student kept records and did not need to keep returning to get instructions repeated. The work area was organized and safe.
* The first copy of the final report **was sloppy and poorly organized, so it did not flow. Some key observations were missed**.
* **Critical thought and analysis were present but was very limited, so the work tended to be descriptive rather than analytical. Documented relationships between the field and the research were limited to one or two novel references. The analysis was difficult to follow because the arguments were not consistently related to the observations or contradictory observations were not recognized or the conclusion was inappropriate for the evidence**.
* The style was generally appropriate for an ASM journal submission, but the content placed in the title, abstract, methods, results, discussion and reference sections were not consistently appropriate.

**Grades below 72%** represent poor work or effort. They are suitable if:

* The student did not understand the significance of the project in relation to the field.
* **The student put in less than 15 hours per week and did not get results.**
* **The report is difficult to read because it was not focused on the research question or it had numerous grammatical problems, or it missed many key observations, or it was mostly just descriptions with no significant critical thought and analysis.**

**Grades of 50- 55%** represent marginal work or understanding.

• The student did adequate technical work, completed the report and the exam but did not understand the project or the meaning of the results.

**Grades below 33%** indicate that the student might have done good technical work but did not complete the report or the oral exam.