

## Learning Outcomes

In preparation for your research placement, you will develop **Learning Outcomes** that clearly describe what you will be able to "do" as a result of your experience. Work with your mentor to develop Learning Outcomes that align with the goals of the research project and your personal learning goals. As you develop your outcomes, remember that this is a target for your performance, so aim high and be thoughtful about your desired outcomes.

Each **Learning Outcome** is achieved through the completion of a given set of **activities**, which result in a **product(s)** that is measurable by **criteria** that you and your mentor agree upon. To start off, answer the following questions:

1. What do you want to achieve, or be able to do, as a result of your placement? (Outcome)
2. What activities will you engage in during your placement to accomplish the outcome? (Activity)
3. What product(s) will you produce to demonstrate that you have accomplished your outcome? (Evidence/Product)
4. What standards will be used to judge the quality of your product(s)? (Criteria)

Now, using strong, active language hone your answers and convert them into definitive statements. Be sure to develop outcome statements that use strong action verbs that describe mastery of the outcome. For example, instead of saying "to learn about", "to participate in", or "to study" use strong action verbs such as "analyze", "assess", "evaluate", etc. (see Table 1). Your activities describe the process you will engage in to develop the knowledge and skills needed to achieve your Learning Outcome. Your evidence, or product, is the documentation you will produce that demonstrates that you have accomplished your outcome. Your criteria define what constitutes high quality work. If done correctly, there will be perfect alignment between the activities, evidence, criteria, and Learning Outcomes.

Action Verbs for Outcome Statements.

Analyze	Apply	Assess
Build	Categorize	Compile
Conduct	Create	Demonstrate
Develop	Establish	Estimate
Experiment	Evaluate	Identify
Operate	Plan	Report
Research	Summarize	Survey
Test	Translate	Update

Use words that describe your criteria (e.g. accurate, organized, relevant, effective, etc.), define your key words, and strive for about three criteria for each outcome. For example, if you state that your evidence needs to meet the criteria of being accurate, aesthetically pleasing, and well-organized you might define them in the following manner:

- **Accurate:** Material is presented without errors or misinterpretation.
- **Aesthetically pleasing:** Products are visually appealing to intended audiences.
- **Well organized:** Material is presented in a logical and easily understood manner.

Please refer to the sample completed Learning Outcome grid as you develop your Learning Outcomes.

SAMPLE				
	Outcome	Activities	Evidence / Product	Criteria
Prompting Question:	What will I be able to do as a result of this placement?	Which actions or activities do I need to complete to achieve this outcome?	What produces will prove that I accomplished this outcome?	How will I know if this product is to par?
Key Words:	Analyze, assess, evaluate, create, survey, etc.	Learn techniques and procedures, practice, etc.	Mentor sign-off, database, reports, presentations , etc.	Accurate, useful, organized, effective, etc.
	Analyze agricultural runoff water quality using the Lachat Autoanalyzer.	1. Read autoanalyzer manual. 2. Practice autoanalyzer procedures. 3. Learn quality assurance procedures. 4. Learn good lab practices. 5. Learn how to dispose of hazardous wastes.	Mentor sign-off of appropriate agriculture water quality analysis skills at the stated criteria.	Independent: Able to use equipment without supervision.  Follows lab protocols: Always follows lab safety guidelines and quality assurance procedures.  Accurate: Use lab standards to determine instrument accuracy.  Clean and organized: Lab is left clean and organized, and hazardous wastes are properly disposed.
		6. Develop data compilation and analysis skills.	Nutrient data sheets and summaries of all nutrient analyses.	Organized: Data sheets are neat, legible, and well organized.  Accurate: All data sheets are presented without error or misinterpretation.  Complete: All nutrient samples are processed and compiled into data sheets.
		7. Develop Excel graphing and data display skills.	Excel graphs summarizing raw data results from nutrient analyses.	Accurate: Data are entered into appropriate excel sections without error.  Well organized: Graphs are presented in a logical and easily understood manner.  Useful: Staff can use summary graphs for reports and further research.