

CPRE 288 Spring 2018 Labs

Debugging Tips for Students

Adapted from University of Michigan, Being a Successful Lab Instructor, January 2012.

Help Policy

Debugging questions: Students should try to complete/attempt General Debugging Steps 1-3 (see below) BEFORE asking for help.

Students should think about why and when the problem occurs. Be ready to explain to the lab instructor on paper what happens to the input and the variables as you walk through the program. Students should be ready to explain whether the program actually does what they say it does. If not, when does it veer off.

General Debugging Steps

Adapted from an IBM article.

1. **Reproduce it.** Make sure you can reproduce the error before you start debugging.
2. **Reduce input.** Determine the smallest input that causes the error. The smaller the input, the easier it will be to find the error.
3. **Isolate problem code.** Isolate the portion of your code causing the error. You can do this by tracing the data's flow through your program. At the start of each function, do the variables contain the values you expect? Do the functions return what you expect? Isolating the function or lines of code causing the error will help you find the solution.
4. **Experiment.** Hypothesize a potential cause for the bug. Then test to see if your hypothesis is correct by changing the input or code to either rule out the hypothesis or confirm it.
5. **Experience.** Think if you have had this type of error before and what the solution is. Do an online search or talk to others. Sometimes, explaining the problem will help you discover the problem.
6. **Never Give Up.**