

## HYPOTHESIS TESTS INSTRUCTIONS

When writing down a hypothesis test:

1. Clearly indicate the problem you are solving (e.g. Testing whether sons are taller than their fathers on average).
2. Label variables/parameters as needed (e.g.  $\mu$ : mean difference in height, son–father).
3. Write down your null and alternative hypotheses (e.g.  $H_0 : \mu = 0$  and  $H_1 : \mu > 0$ ).
4. Write down your test statistic in a way that makes the distribution clear (e.g.  $t = 1.3055$  with 23 df).
5. Include assumptions behind the distribution and any validation of those assumptions (e.g. Assuming differences in heights of fathers and sons are normally distributed. A normal Q-Q plot suggests some reason for concern about this assumption, but nothing conclusive).
6. Write down your  $p$ -value (e.g.  $p$ -value: 0.1023).
7. Write your conclusion clearly (e.g. We have very weak evidence for rejecting  $H_0$ . Based on this evidence alone, we fail to reject  $H_0$ ).